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PROFESSOR S. H. GAIGER, F.R.C.V.S.

President of the Royal College of Veterinary Surgeons

There can be few members of the Royal College of Veterinary Surgeons with a wider experience of veterinary work than Professor S. H. Gaiger, its newly-elected President.

His main work has been in the spheres of teaching and research and he has covered many aspects of both, having specialised in tropical work, as well as in that of temperate climates.

Soon after graduating, Professor Gaiger was appointed to the Indian Veterinary Service as a professor at the Lahore Veterinary College, teaching pathology and contagious diseases, and undertaking research in these subjects. Had he remained, he would now be the senior officer in the service. He left his mark on Indian veterinary work, his investigations covering a wide range of subjects and his success as a teacher being widely recognised: incidentally, he gave considerable attention to helminthology and, at a time when the development of this subject was very different from what it is at present, he published accounts of parasites then new to science.

It is not without interest to note that Professor Gaiger was at one time a well-known and energetic combatant Yeomanry officer, holding a commission in the Punjab Light Horse: he was also a keen polo player.

In 1916 he went to Peru and spent some time investigating "renguera"—a serious sheep scourge. Later, he was appointed Principal of the Glasgow Veterinary College where, in addition to intensive work on research and a complete reorganisation to the college régime, he again took up teaching and it is no secret that his classes in pathology and bacteriology achieved examination successes that have rarely been equalled.

While in this post, Professor Gaiger roused the interests of Scottish agriculturists and landowners, who placed such confidence in his ability that many of them became his enthusiastic disciples and organised campaigns to raise money for the inauguration of a properly-equipped and staffed research institute to study Scottish problems. The result was the founding of the Animal Diseases Research Association of Scotland: at first the work was carried out in co-operation with the Glasgow Veterinary College and, later, when sufficient funds were available to build on an ambitious scale, a site was chosen in Edinburgh. Moredun Institute, the Association's headquarters, is a model of which any organiser could be proud; its entire layout was planned by Professor Gaiger with the attention to detail typical of all his methods of work.

In 1926 came a call to the William Prescott Chair of Animal Pathology, Liverpool University, and since then Professor Gaiger has made history, introducing the teaching of veterinary pathology in that school where previously it had been necessary for students to depend upon the classes in human pathology for preparation for their examinations.

As was not unanticipated, Gaiger's boundless energy and ability soon drew the interest of agriculturists and others in the north-west of England. Considering his short tenure of office and the difficulty of the times in which we live, one is surprised at the amount of money which has been raised towards the endowment and equipment of a department of veterinary research and education within the University. Twenty thousand pounds has already been raised; the laboratories at Bedford Street, Liverpool, were completed in 1929 and extensions will shortly be taken in hand.

The appointment of the Professor to Liverpool soon attracted students to his lectures and something in the nature of a *wanderjahr* has been in vogue, students going to Liverpool for the third year to enable them to benefit from his teaching.

Professor Gaiger's research work is too well known to require description. Perhaps his investigations of "braxy" can be quoted as of outstanding interest; the value of this work is now receiving special attention, as it coincides with the great development of anærobic bacteriology in relation to sheep diseases, which has aroused interest in most countries in recent years.

In 1925 he was awarded the John Henry Steel Medal by the Royal College of Veterinary Surgeons for research in animal pathology.

As a debater and protagonist of policies which he takes to heart, the subject of this note is a master: he is a pillar of strength when his support is enlisted and, as many have found to their cost, he can be a doughty opponent.

In 1927, he was invited to visit the Argentine to advise on the position with regard to foot-and-mouth disease. He spent six months in South America, incidentally renewing his connection with the veterinary problems of that continent.

DEPT. OF VET. MEDICINE

He was elected to the Council of the Royal College of Veterinary Surgeons in 1919 and since then has served continuously. His attention in Council has been devoted chiefly to the work of the Examination and Parliamentary Committees.

He has always taken an interest in the work of the National Veterinary Medical Association and in 1932 was elected Vice-President of the Lancashire Veterinary Association.

His *magnum opus* is the text-book on Veterinary Pathology, which he published recently in collaboration with G. O. Davies; from the reception with which the book has met, both in this country and abroad, its position as a standard text-book in veterinary pathology and bacteriology is assured.

The calls of committee work have naturally taken up a considerable amount of Professor Gaiger's time during the last few years. Among other activities, he is a member of the Foot-and-Mouth Disease Research Committee of the Ministry of Agriculture and of the committees of the Agricultural Research Council on Anærobic Infections and on Johne's Disease.

RECENT ADVANCES IN OUR KNOWLEDGE OF POULTRY DISEASES

(Three Lectures at the Imperial College of Science)

H. P. BAYON

Henry George Plimmer Fellow in Pathology

(Continued from page 669.)

Lecture II.—The Significance and Importance of Vitamins in Relation to Poultry Nutrition and Hygiene

Amongst the remarkable advances in biological knowledge which have been achieved in recent years, one may certainly reckon the discovery and recognition of the part played by vitamins in relation to nutrition and pathology of man and animals. Reference has already been made to the manner in which these progressive scientific researches originated from experiments on fowls and pigeons and how these early studies have been followed by remarkable advances in the knowledge of the importance of these essential food factors in connection with diseases of man and animals, such as different forms of "beri-beri," rickets, scurvy, pellagra and even obscure conditions like night-blindness, which in ancient medical nomenclature was known as "hen blindness."

The designation "vitamin" is applied to several distinct chemical substances which, though they differ in constitution and mode of action, yet exhibit this feature in common: that their absence from foodstuffs and their consequent lack in the organism of the animal consuming these foods, will be followed sooner or later by recognisable disturbances in certain selective physiological functions. The evil effects of these deficiencies usually can be kept in check or even cured by the use of the relative vitamins; as a rule, such minimal therapeutic doses are required that their measurement is obtained more by calculation than by actual weighing or even titration. It is for this reason that but a few years ago investigators have doubted whether vitamins should not be considered physical agencies rather than chemical substances, as they eventually have proved to be.

That the absence of vitamins causes disease is also a remarkable character; for nearly all other causations of disease either act through excess or at least by actual addition in visible or measurable quantities.

Hitherto research has been mainly concerned in discovering the direct effects of abstracting definite vitamins from foodstuffs and measuring the minimal quantities required to protect certain vital physiological functions from the harm resulting from such deficiencies. Lately, however, a beginning has been made by investigating the action of different vitamins on the development of various parasitic and pathological conditions, the latter including nutritional intoxications like lathyrism.

The study of the action of several vitamins in different proportions has also been approached; for though one may surmise that this is the mode that occurs more frequently in nature, it must be admitted that experimental proof on such lines is particularly difficult to obtain.

Important as vitamins are known to be in relation to the health and well-being of man and the larger animals, yet these essential food activators are even more vital in relation to poultry, in whose economy they play a dual if not triple rôle. The effects of the deprivation of sunlight from chicks are well known, but the vitamin content of poultry foods is, moreover, highly desirable, for in addition to other important considerations, it has been ascertained that vitamins A and D influence the production and hatchability of eggs to a remarkable extent; and lastly, eggs are a relatively cheap and easily obtainable source of vitamins for human consumption.

Apart from the effects induced by the lack or bare sufficiency of vitamins on physiological functions of the domesticated fowl, it can be added that there is also a definite influence in relation to various pathological conditions.

In general terms it has been observed that the type of nutrition employed from the chick stage onwards, is not only noticeable in relation to weight increase, feathering, egg-laying, etc., but that, moreover, the mortality in connection with various definite pathological conditions, such as coccidiosis, fowl-pox, tapeworms and others, is influenced by the state of nutrition of the fowls

affected. It would be an exaggeration to state that if you look after the vitamins the other food constituents will look after themselves; but it can be said that even the freshest and soundest constituents will be useless if not accompanied by suitable vitamin contents.

The importance of fresh and wholesome poultry feeds is admitted; nevertheless, there is the tendency among poultry farmers to pin their faith to some particular formula or other, irrespective of the origin of the foodstuffs and without considering that many mashes are as good as their lowest-grade-constituent part. In other words, a mash which, irrespective of the formula, contains an excess of fibre, or an unwholesome stale wheat product or a low-grade animal protein, will eventually be reflected not only in the state of health and egg-production, but also in the consequent mortality when the first outbreak of disease makes its appearance; and sources of disease are always plentiful and widespread. In these matters it may be said that vitamins hold the key position and their recognition is a matter of considerable practical importance.

The purpose of the following table is to show how foodstuffs vary in their vitamins and to explain where attention must be particularly directed for the purpose of obtaining a suitable balance of vitamins for feeding fowls.

In the present state of knowledge regarding vitamins, any tabulation can only deal with approximate results; these, moreover, are subject to great variations as the outcome of different conditions, allusion to which has been made in the text. There are also many blanks in this table; in the majority of instances the vitamin content of some particular foodstuff has not been investigated, to the extent of allowing a comparison to be made of the quantity present; in others the examination has not been undertaken as there is every reason to believe that the particular vitamin is absent.

The signs +, ++, +++ indicate different degrees of vitamin content. ± means that the relative vitamin may at times be absent. T signifies that traces can be detected. ? is a doubtful result, whilst O = definitely absent.*

Vitamin Content of some Foodstuffs which are connected with Poultry Nutrition

	A	B_1	B_2	C	D	E
Alfalfa dried ...	++	+			T	
Apples	+	+		++		O
Barley, unhusked	+	+				
Beetroot-mash ...	?	++		?	?	
Biscuit-meal ...	O	±	O	O	O	O
Bran	+	+	+	O		
Bread, white ...	O	O		O	O	
„ wholemeal	T	++		O	O	
Broad Beans, ... fresh	+	++	±	±	O	
Butter	+++	O	O	±	+	±
Cabbage, leaves	++	++	+	+++	O	+
Cod-liver Oil ...	+ to +++	O		O	+++	
Clover, green ...	++	++		++	+	
Dandelion, leaves	++	+			?	
Ducks' Eggs ...	++					
Eggs (Hens), yolk	+++	++	++		++	
„ „ white			+	±		
Fish-meal ...	+	±	±	O	+	
Goats' Milk ...	+++			±	++	
Lettuce, leaves ...	++	+	+	++	O	+++
Lucerne, green...	+++	+++		+++	++	
Maize, white ...	O	+	±	O		
„ yellow ...	+	+	±	O		
Milk (cow's)fresh Summer	+++	++	++	+	+	+
Winter...	++	+	±	±	—	—
„ „ dried ...	±	+		O	±	
„ „ skimmed	±	+		O		
Oats, dried ...	±	+		O	O	
Peas, dried ...		+				
Potatoes... ...	±	+		++		O
Pollards or Middlings	T	++				
Rice, whole ...	+	+	+	O	±	
„ polished ...	O	O	O	O	O	
Sprouting Seeds in general ...	+	+	+	++		+++
Soya Bean meal	T	++	+	O		
Tomatoes ...	++	++		+++		
Watercress ...	+++	++		+++		
Wheat, whole ...	+	++	±	O	±	
Yeast, moist (baker's)	±	+++	++	O		
„ dried or extracted ...	O	+++ or ++	+	O		

* For the information contained in this Table acknowledgment must be made to the similar tables in: I, Ethel Browning: *The Vitamins*, 1931; II, *Tabulæ Biologicæ Periodicæ*, Vol. vii, 1931.

Experiments and Field Observations

Nearly all the knowledge extant relative to vitamins is the outcome of experimental researches; nevertheless, in discussing this subject in these lectures, experiments in the laboratory have been considered only where they agreed with observations in the field. If a sharp disagreement was apparent, for which no explanation was as yet forthcoming, the subject has not been dealt with. Even as one swallow does not make a summer, so single observations in the laboratory cannot be considered decisive till they have been repeated and their agreement or disagreement with what is known to happen in nature is adequately ascertained and measured. These remarks are induced by the knowledge that vitamins act differently in relation to different animals. For example, the rat is usually employed as a test animal for vitamins A and D, but this rodent is by no means as susceptible to the deficiency of vitamin C as is the guinea-pig, which again differs in this from the dog; numerous other relevant examples could be quoted. Moreover, large

individual variations exist in relation to all vitamins even within the species. For these reasons, experiments in relation to different vitamins are preferably performed on batches of 30 to 50 fowls at a time.

The Classification of Vitamins

The designation of various vitamins by means of alphabetical letters was suggested by Drummond, and has found universal recognition. Vitamins, then, can be grouped according to easily recognisable properties; for example, A, D and E, fat soluble; B-complex and C, water soluble. More particularly: A = growth promoting and indirectly anti-infective; B = anti-neuritic; C = anti-scorbutic; D = anti-rachitic; E = reproductive.

In course of time these designations may be substituted by the exact chemical formula of different vitamins.

Such are the general considerations governing the outlook in relation to poultry and vitamins, which now will be singly considered.

Vitamin A

Though the first in alphabetical classification, this was not the first vitamin to be discovered; nevertheless, one of its principal properties, that of a growth-promoting factor, had been recognised and correctly surmised some years before the work which ascertained the existence of the vitamin B complex was published. The knowledge relative to the development of this important growth-promoting vitamin is still proceeding apace; therefore, complete agreement has not yet been obtained relatively to several of its properties. However, it is possible to state that not only is it widely distributed, but that its potency can be quite accurately measured and that its importance in relation to nourishment, growth and health is being increasingly appreciated; therefore it requires full attention in connection with poultry nutrition.

General Effects of Vitamin A Deficiency

It has already been stated that the deficiency of any definite vitamin does not necessarily exhibit the same symptoms in all animals; there are, moreover, great variations in incidence even among individuals of the same species or even family. In the particular instance of vitamin A it must be admitted that there is a certain measure of agreement in relation to the symptoms observed in the different laboratory animals tested. The effects of the acute deprivation of vitamin A (or avitaminosis) which can be obtained in experimental animals can be scarcely observed to occur, in our climes, in man; still, there is reason to believe that a diet low in vitamin A values may induce a condition of hypovitaminosis and so be connected with an increased puerperal mortality; also with chronic infective conditions which follow measles and the aggravation of diseases or pathological lesions whose causation is as yet obscure, as, for example, nyctalopia or night-blindness, or forms of xerophthalmia in childhood.

It should be understood that the part played in human physiology by vitamin A is not directly anti-infective in the sense that it acts as an antibody against bacteria. The process involved is not as simple; in the first instance the deprivation of vitamin A may show itself by an increased thickening of the epithelium of the respiratory tract, which then is more easily invaded by common bacteria which are always present in the upper air passages. Secondly, there appears to be a certain influence on the regeneration of the bone marrow, a process which is constantly taking place; this may in its turn be linked with a disturbance in the production of the antibodies usually detected in the blood serum.

Experimental Evidence

Obviously these mechanisms, incompletely as they may have been observed, are only recognisable in experimental animals, such as dogs and rats. In growing puppies, the experimental work of the Mellanbys (lecture at Cambridge, 1933) has shown that the lack of vitamin A in the diet will cause the appearance of nervous and paralytic symptoms, which are manifested in apathy, lack of interest in surroundings and uncertain, unsteady gait or even complete inability to walk. The anatomical substratum of these conditions is to be found in typical and selective degeneration in the spine. The experimental effects were obtained by feeding puppies on white maize, which is deficient in vitamin A; as a control, other puppies were fed on yellow maize, which contains the pro-vitamin; these grew up active, healthy and strong.

A diet deficient in vitamin A may also cause in puppies the appearance of a peculiar swelling of the lids of one or both eyes, followed by injection of the cornea and catarrh of the conjunctivæ with a subsequent purulent discharge; the swelling may increase to the extent that the eye may be completely closed. Obviously, bacterial infections complicate this ophthalmia, but the primary inciting cause is the lack of vitamin A in the dietary; this can be confirmed by adding the necessary vitamin to the food in the shape of cod-liver oil or egg yolks, when the condition, if not too advanced, will clear up in a week or ten days.

In young experimental rats the lack of vitamin A is usually rendered noticeable by a definite retardation in growth, mortality through septic conditions of the lungs, peculiar abscesses at the base of the tongue and, in addition, the peculiar kerato-conjunctivitis or xerophthalmia already described in puppies.

These various conditions are more easily noticeable in young rats and even in these only in a certain proportion. For example, in the experiments of Osborne and Mendel (1921), out of 136 rats, 69 developed eye symptoms. Adult rats which have been suitably fed appear to have stored vitamin A in their tissues, which will enable them to withstand considerable periods of deficiency. In relation to adult rats, it has, however, been noticed that female rats, which had received an addition of vitamin A to their diet, just sufficient to promote normal growth, were yet unable to produce healthy litters or in certain circumstances even remained sterile. For the birth and upbringing of normal litters an excess of vitamin A was required, an observation which is definitely relevant to the influence of vitamin A on the hatchability of eggs.

Such are the principal observations on which the knowledge of the effects of vitamin A deprivation are based; they show the advisability of watching the sources of this vitamin in human dietary in the shape of wholesome milk and fresh eggs.

Measurement of Vitamin A Content.—The presence or absence of vitamin A in various substances can be recognised by experiment; further, the quantity present, if any, can be accurately measured by several methods—chemical, spectroscopic or biological. Taking the last-named first, the animal selected is usually the rat; batches of young rats of some definite laboratory strain are fed on a special vitamin A-free diet and their delayed rate of growth watched. At the same time another similar batch of the same strain is fed with the same diet, *plus* a measured quantity of the substance to be tested. The rate of weight increase is then plotted out in a graph and numerical comparisons are made, from which certain deductions can be obtained. There are, of course, numerous controls and safeguards required in relation to such experiments, which have made this biological method remarkably exact.

The spectroscopic method is not extensively used, since it depends on the recognition of the bands produced by certain pigments which frequently accompany vitamin A, and not yet really on that of the vitamin itself.

The third, or chemical method, is colorimetric titration, usually by means of antimony chloride, which, when suitably mixed with a solution containing vitamin A, produces a blue tint whose intensity can be compared and graded with a recognised standard. This method is also commonly employed, though not absolutely accurate.

These methods are mentioned to show that it is possible to grade foodstuffs and other substances, like tissues, etc., for their vitamin A content and that the statement that alfalfa meal contains so many units is not based on an interested assumption.

Occurrence in Nature and Foodstuffs.—In a general way it can be stated that vitamin A is found in varying quantities in all growing plants, varying between 200 units per gramme weight in the scarole or Batavian endive, then dried alfalfa with 100 units, spinach with 60 units, 10 units for lettuce; green peas, carrots with 25 to 70 units per gram, yellow corn 3 to 4 units, and less than one unit in bran, barley and cottonseed.

The average content of vitamin A in fresh milk is about 2 units, whilst dried or concentrated whole milk will show 16 units per gram. Milk may turn sour without losing its vitamin A content.

Butter usually contains 30 to 50 units per gram, though this is subject to fluctuations according to the season and the feed given to the cow. Vitamin A is present in most animal fats, but not in lard. A good cod-liver oil will contain about 300 units per gramme weight. A similar oil made from the halibut's liver may contain anything between 30 and 7,600 units. This is mentioned as an example of the astounding variation which may naturally occur in the vitamin values of foodstuffs.

Eggs, good eggs, are an important source of vitamin A. It is mainly contained in the yolk and the concentration naturally depends upon the content in vitamin A of the food of the hen. It has been ascertained that the whole egg will contain 15 to 20 units of vitamin A, the yolk being about three times richer than the white. It has not been yet observed how far the hen is capable of drawing upon the storage of vitamin A in her body to supply the egg, when the vitamin is deficient in the food. If one may attempt to draw some deduction from the relationship of the vitamin A content of the feed in a cow and its appearance in the milk, one may surmise that a relatively equal value can be maintained over short periods, even in the course of rapid fluctuations in vitamin A content in the feed.

Origin of Vitamin A in the Tissue of Fowls.—In the domestic fowl, vitamin A seems to be particularly stored in the liver, in which organ it appears also to be built up or synthetised from the constituent parts of a pigment called carotene, which is present in numerous growing vegetables. It may be noted that whilst carotene is a bright yellow, vitamin is colourless or nearly so. The definite connection between carotene and vitamin A is not yet conclusively settled, but the main broad lines are that carotene is a precursor of vitamin A and not an accidental accessory pigment. That liver tissue of different fowls may vary greatly in its capacity for building up vitamin from carotene has been observed.

Acute Experimental A-avitaminosis in the Fowl

Since vitamin A is so important in the economy of the domesticated fowl, it is but to be expected that its lack would induce lesions to appear with relative constancy and frequency; this is indeed the case. All the symptoms observed in experimental rats can be produced in fowls by feeding them on a diet deficient in vitamin A. These effects were originally experimentally investigated by Beach (1923), and these results have since been repeatedly confirmed. It was found that a peculiar form of eye roup might develop in 60 to 80 per cent. of the fowls under experiment; this eye affection consisted in a white, whey-like exudate in the eyes and nasal sinuses, very similar to that seen in canker, but by no means as thick, or yellow or fœtid. To obtain such results one need only feed pullets or cockerels during six or seven weeks on a mixture of white maize and bran or bran alone under intensive conditions. Many of the birds will die before developing eye symptoms and on death will reveal another set of symptoms, which I am illustrating. These consist in a peculiar pimpled appearance of the œsophagus, which is pitted with numerous small white buttons; moreover, reticulated marking of the kidneys is found, which organs are paler than usual. Heavy infarcts of uric acid are noticeable in the ureters and sometimes also a powdery deposit in the muscles of the breast and inner surface of the abdominal walls.

The pimples in the œsophagus appear under the microscope to be the result of the combination of an increase of stratified epithelium and a concurrent bacterial infection. The lesions in the kidneys resemble more a chronic toxic process, since the tubular epithelium and the renal capsules are subject to cloudy swelling. Though these conditions are obviously the direct outcome of a lack of vitamin A in the food, yet it appears evident that they are complicated by bacterial infections and possibly also toxic influences, presumably of intestinal origin. It must be noted that in such experiments, if large numbers of fowls are employed, a small number, about 10 to 15 per cent., will survive a lack of vitamin A which has killed off the rest.

Though these lesions present considerable interest from the standpoint of pathology, their practical relevance is only indirect, because extensive and intense lesions of acute avitaminosis A are scarcely ever met on farms. Nevertheless, it is quite evident that partial or incomplete deficiencies of vitamin A are much more frequent than might be expected and their practical importance requires attention.

Fig. 1.—Chronic Vitamin A Deficiency (Hypovitaminosis).
Right ureter filled with white urates in chronic Vitamin A deficiency; the ureter is the thick white line descending from the kidney which is pale and nutmeg-like in marking (reticulated).
[*Photograph reproduced by courtesy of "The Feathered World."*

Chronic Avitaminosis A under Farming Conditions.

In poultry farms the lack of vitamin A not only is never complete but also usually extends

over prolonged periods; its origin may be traced to a desire to obtain white flesh in the birds or the purchase of an apparently cheap and yet poor mash ration. Where this happens the lack of vitamin A is usually masked by heavy mortality as the result of different parasitic diseases, including the canker variety of fowl-pox, severe "colds," "tracheitis," etc. It is therefore incumbent on the veterinarian who intends to study the pathology of fowls seriously, not to be misled by superficial appearances when called in to advise in relation to the rapid spread of infectious poultry diseases, but to investigate the possibility of the nutrition of the birds not being all it should be or what it claims to be.

These general considerations are based on the result of the interpretation of experimental work and the outcome of observations on numerous farms.

The Influence of Vitamin A on Egg Production and Hatchability.—Under natural conditions on a farm, a lack of vitamin A in the rations will be soon reflected in a drop in egg production and also hatchability; but this action is frequently combined with a lack of vitamin D, so that the direct connection is not always clear.

In experimental work, when feeding rations totally deficient or even low in vitamin A, the lack of development of the pullets is very evident; that such pullets, even when placed on rations containing a sufficiency of vitamin A are delayed in their laying is also quite evident. In pullets six or seven months old the ovary will still be found white and compact and the oviduct a milky, straight line about 2-3 millimetres broad.

If it is wished to obtain definite figures in relation to this particular aspect of egg-production, one can refer to the observations of L. F. Payne and J. T. Hughes (1933) who, in experimenting with four batches of 54 fowls each, found that a mash with alfalfa added gave the following totals of eggs produced: 5,745, 6,241, 5,070; whilst the same meal with the ashes of the alfalfa added (therefore with the same mineral contents, but without vitamin A) resulted in 3,033 eggs. In percentages the figures are: with vitamin A, 45, 48, 42 per cent.; without vitamin A, 30 per cent.

That the lack of vitamin A in the parent hen will influence the hatchability of the egg laid has been conclusively observed in experiments in which alfalfa meal was employed as the source of vitamin A; it was then found that hatchability varied between 55 and 60 per cent. where the vitamin content was sufficient and only 41 per cent. where this was deficient. The results of these experiments by L. F. Payne and J. T. Hughes agree completely with the experience on farms, where it is known that

Fig. 2.—Effects of Lack of Vitamin A in Food

Pharynx of a pullet which was taken off free range and fed exclusively during nine weeks on a cereal diet deficient in Vitamin A. The lining of the gullet instead of being smooth is covered with numerous raised pimples, which on examination under the microscope can be seen to consist of increased numbers of cells from the outer membrane and also cells which are the result of inflammatory reactions. The right eye was puffed and swollen and the lower eyelid has been cut open after death.

[*Photograph reproduced by courtesy of "The Feathered World."*

winter eggs show a lower hatchability ratio than those obtained later on, when green food and also sunshine are more easily obtained. It will be seen that here, as elsewhere, the figures do not exhibit those absolute differences which are so beloved by the "all or nothing" critic, who has observed a few fowls at irregular intervals. The relevance of such figures is to be gauged by their consistent recurrence in most experiments by reliable observers.

Vitamin B-complex

This vitamin will be rapidly surveyed, not because it is scientifically less important than the others, but because, though its deficiency is the cause of experimental polyneuritis in fowls, yet in view of the grain feed which birds receive in captivity its occurrence must be very rare.

A few words will suffice to convey that whilst this vitamin is the first really recognised and the one to which Casimir Funk originally gave the name "vitamine," yet, notwithstanding more than 20 years of ardent research, uncertainty is still extant in relation to its exact chemical constitution, though this substance is thought to be a basic substance of relatively simple composition. Nevertheless, it is usual to consider that this vitamin consists of several fractions which are separable by means of heating, precipitation, adsorption, etc., and which are numbered with an index figure thus: B_1, B_2, etc. A peculiar feature of this vitamin is its relation to appetite in experimental animals; whilst with other vitamins the deficiency is scarcely noticed, pigeons or hens have to be forcibly fed with the boiled husked rice after the first two weeks; the day that the same food has some yeast extract added to it the appetite returns. A further somewhat obscure point is that animals paralysed through the polyneuritis induced by lack of vitamin B_1 have all the appearances of being starved.

It may be mentioned in relation to this vitamin, that at times spontaneous cures occur, for reasons which are as yet uncertain.

Occurrence in Nature.—The whole grains of most cereals are rich in vitamin B. Plimmer (1927) has assigned the following values to various cereal foods as the result of tests on pigeons:—

Dried yeast	100	Rye	9
Marmite ...	40–50	Barley ...	7–8
Bran ...	12–13	Oats	4–5
Middlings .	12–13	Oatmeal ...	4
Whole wheat	8–10	Maize ...	7–8

In eggs, vitamin B_1 is present in appreciable quantities, but can be destroyed by prolonged boiling.

In cow's milk it is also to be found, and in grasses and fruits. The measurement of the value of the vitamin B_1-content of any substance is obtained by the curative effect on pigeons or fowls with avitaminosis B, or polyneuritis, and by the measurement of the growth-promotion effect in young rats.

Vitamin C

Fuller reference to this vitamin and its possible influence on the well-being of growing chicks will be found in the *Veterinary Record* of April 23rd, 1932. It will therefore suffice to state that it is present in many vegetables, fruits and growing grasses. Its exact chemical nature has lately been ascertained by Szent-György, who identified it with hexuronic or "ascorbic" acid. Its principal effect appears to be that of a scurvy preventative in man; its lack in the food of artificially-fed babies may be a contributory cause of the faulty dentition so often noticeable in infants in poor homes. Cow's milk does contain a certain amount of vitamin C, but not always sufficient for infant nutrition; hence the addition of orange juice which has proved so effective in practice.

The presence of vitamin C is measured by its anti-scorbutic effect on the dentition of guinea-pigs, which easily develop the "sore mouth" known in human scurvy if fed on diets deficient in this vitamin.

Vitamin D

In the course of research relative to vitamin A, it was noticed that the element in food which prevented the development of xerophthalmia in rats appears to differ from that which prevented the inception of rickets, though both substances were fat soluble and apparently often occurred together. After numerous trials and tests the two vitamins were differentiated, one being vitamin A and the other vitamin D, a deficiency of the latter in the dietary of a growing animal causing the development of thick and deformed joints and distorted breast.

Origin of Vitamin D.—It may be remarked that whilst other known vitamins are usually stored or utilised in the body after the ingestion of the food containing them, this vitamin can be obtained in an alternative manner, *i.e.*, by being produced in the skin (which contains substances akin to ergosterol) by the effect of the rays of the sun; from the skin it appears to be absorbed into the circulation by means of capillary blood vessels and thus eventually exerts its influence on the calcium metabolism in relation to the bones.

Mode of Action of Vitamin D.—This is as yet not quite clear, but obviously it is an active regulator of the calcium and phosphorus metabolisms.

Experimentally, or even industrially, vitamin D can be produced by irradiating various chemical substances allied to ergosterol by ultra-violet rays of a definite wave-length.

Measurement of Vitamin D.—This is usually done by means of experiments on rats, in a manner somewhat similar to that employed in relation to vitamin A, except that protection from rickets is the criterion employed. From the standpoint of pathology, rickets can be considered a profound disturbance of the normal process of ossification; this can be recognised by examining the skeleton either during life by means of X-rays or by excising small pieces of bone from the various growing points and examining them microscopically. Further, the chemical analysis of the bones is capable of affording valuable indications as to the greater or lesser degree of rickets present in the bones of rats or puppies. To confirm the results of these biological methods, one may have recourse to physical tests, which are founded on the measurement of the activating action of ultra-violet light on measured quantities of ergosterol, and finally these again can be controlled by spectroscopic methods. The essential point to bear in mind is that the vitamin D content of edibles can be absolutely accurately measured, so that, for example, any brand of cod-liver oil can be certified to contain a stated number of units of vitamin D per c.c., *e.g.*, 250 or more, and so be relied upon for the prevention of leg weakness and rickets in chicks.

The Effects of Excessive Dosage with Vitamin D.—Since vitamin D can be produced at will by the irradiation of ergosterol, it is possible to synthetise it to the extent of manufacturing it on a large scale; for this reason it is possible to obtain in a small bulk quantities corresponding to one million or more units. Accordingly, it has been feasible to experiment with vitamin D concentrations which are far beyond anything occurring in nature; it has been observed that by the ingestion of 10,000 or more units, experimental animals, like rats and puppies, can be poisoned. Fowls have also been tested and it has been found that they are particularly resistant to over-dosage, so that they will consume 200 or 300 times the protective dose required for an anti-rachitic effect without showing any signs of harm. It should be noted that the quantities required for this effect do not occur in any edible substance, that is, not in any bulk which could be consumed by any known animal.

Occurrence in Nature and Foodstuffs.—Though widely distributed in nature, vitamin D does not appear to be abundantly present in any edible substance. The best known source is cod-liver oil and, lately, oil expressed from the liver of halibuts has been found to be richer still, though even in this instance, subject to great variations. It is contained in butter, milk, particularly in summer milk, and then in egg yolk; here again, its content varies with different seasons of the year, being lowest in winter.

Cod-liver Oil and Vitamin D.—It is commonly known that the discovery by Herrick, Ackert and Danheim (1923) of the beneficial effects of this oil as a substitute for grass and sunshine, has rendered intensive poultry breeding on a large scale at all possible. Previously, the mortality due to "leg weakness" and other ailments resulting from the lack of sunshine and fresh food, made intensive rearing commercially unprofitable. It is now generally admitted that in intensive rearing the lack of sunshine, that is, of vitamin D, can be substituted by feeding up to 2 per cent. cod-liver oil in the mash. Instances are not infrequent where this has been done, and yet a certain number of the chicks will show signs of distorted breast-bones, thick joints and leg weakness, all of which point to D-avitaminosis. A careful investigation will then reveal some fault in the mixing of the cod-liver oil, so that some chicks have received more than their due and some none at all; and since the latter remain weak, they get pushed aside by their stronger companions and eventually fade away. In other instances old and unreliable cod-liver oil has been employed—for by no means all so-called cod-liver oils are alike. The source and preparation have a great influence on the vitamin A and D contents, therefore the origin of the cod-liver oil and its distribution in the mash should be watched; for cod-liver oil is now purchasable with a certified A and D content.

D-avitaminosis and "Leg-weakness" in Chicks due to Lack of Sunlight

Acute and complete D-avitaminosis, which commonly goes by the name of "leg-weakness" and is caused by lack of sunlight and/or deficiency in the foodstuffs which should substitute this defect, is no longer common. The last instance observed was at a farm which closed down soon after; here the windows of the houses had been blotted out by whitewash so as "to keep out the cold." The obvious effects of withholding sunshine can be easily seen in the photograph, which I owe to the courtesy of Professor L. D. Bushnell, of the Kansas State College of Agricultural Science, and which relates to experiments performed by Mr. L. F. Payne, of the same college.

Though the acute form of D-avitaminosis occurs rarely, one still meets with pullets which are backward in development, exhibit distorted breast-bones with joints thick and misshapen, whilst the epiphyseal portion reveals traces of disarranged cartilage and osteoid tissues, the result of disturbed calcification. In pullets, the ovary is only partially developed, with numerous inspissated small yolks, a condition somewhat reminiscent of what at times is seen in chronic infection with *Salmonella pullorum*. Such instances of D-hypovitaminosis are not resistant to intercurrent infectious ailments and it is not

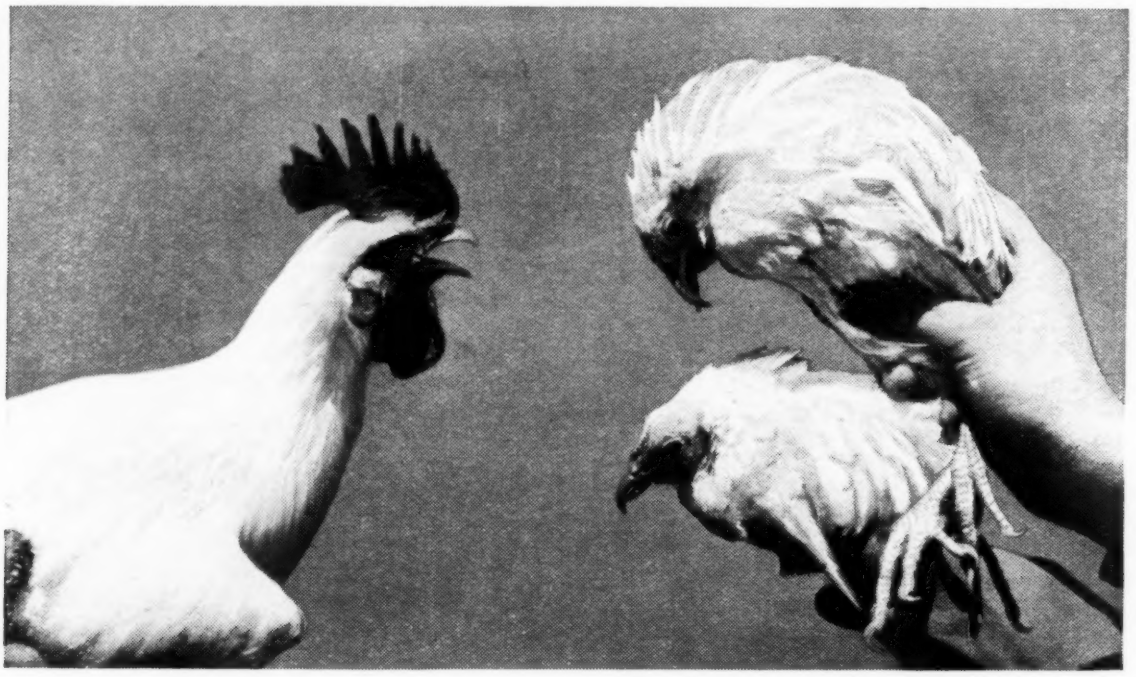

Fig. 3.—The Effect of Sunlight. (Experiments of L. F. Payne.)
Three cockerels of the same age. The one on the left received ordinary diet and sunlight. The others ate the same food but were not exposed to the sun. Note the vulture-like appearance of the deficient cockerels, whose bones were ricketty and soft.
[*Photograph reproduced by courtesy of "The Feathered World."*

unusual to find that the mortality is explained by "chills" or similar symptomatic complications. Where this condition occurs, it is the rule to find that cod-liver oil has been mixed with the food, but a careful examination will soon reveal some flaw in the arrangements, such as the use of a low-grade oil, or irregular and uncertain mixing or too long storage of mash after incorporation of the oil. All possible mishaps cannot be enumerated but from these samples it will be seen that there are many possible slips between the oil and the chicks.

The Influence of Vitamins in the Diet of Hens on the Hatchability of Incubated Eggs

The successful hatching of fertile eggs in an incubator has been shown to be determined not only by genetically inherited factors and physical influences during the process of incubation, but also by the diet of the hen which laid the eggs. This subject has already been discussed in relation to vitamin A, but since under farming conditions the lack of vitamin A in the parent hen is usually accompanied by deficiency in vitamin D, further reference is now made.

The results of the incubation under standard conditions of over 40,000 eggs, from hens of the same breeding and under controlled environment (Graham and Smith, 1929), indicate conclusively that the food of the laying hen, particularly in regard to the supply of fat-soluble vitamins A and D, and the nature of the protein supplied, exerts a profound influence on the extent of mortality during the period of incubation; this nutritiontal effect is obvious, apart from the influence of individual constitution.

This influence of diet on hatchability is particularly pronounced during the months of February, March and April, and not so apparent during May, June and July. It cannot be far-fetched to suggest that this difference may be correlated with the relative difference in the quantity of vitamins present during these months.

It is known that the vitamin A and D content of egg-yolk is largely determined by the amount of these vitamins in the food. It must be made clear at the outset that it is not stated that vitamins alone are capable of bringing about a high rate of hatchability, for several other factors are known to be of importance. As an example of the effect of diet on the mortality in incubated eggs, one may refer to experimental work, which has shown that the addition of cod-liver meal to mash has more than doubled the hatchability of incubated eggs.

Then Hopper (1931) in Canada, by feeding cod-liver oil during the winter, increased egg-production by 20 per cent., improved hatchability by 15 per cent., and augmented the viability of chicks by 10 per cent. Similar results are reported, also in Canada, by Branion and Smith (1932)—who state that vitamin D is an important factor in hatchability and egg-production—and in the U.S.A. by Payne and Hughes (1933).

Vitamin E

The mammalian genetic vitamin E was discovered when it was noticed that rats, kept for relatively long periods upon mixtures of purified foodstuffs, and with ample provision for all known vitamin requirements, showed evidence of needing an hitherto unknown fat-soluble substance for successful reproduction of the species. Further study showed that in rats this substance did not cause failure of reproduction to a greater extent than vitamin A, but did so in different manner; for lack of vitamin A interferes with ovulation, whilst lack of vitamin E influences the placental function. Consequently, it is to be expected that, in relation to poultry, which do not produce a placenta identical to that seen in mammalian gestation, the action of vitamin E must necessarily be different.

It remains, however, to be seen whether this vitamin is not capable of exciting some influence on the hatchability of eggs.

This vitamin occurs in wheat germ and green vegetables, and can also be detected in egg-yolk, so that there is an indication that it may play some part in the development of the chick. It may be that the action of vitamin E is obscured by the more evident effect of other vitamins in cereals, especially vitamin A, whose influence in relation to poultry growth and development, and thus, incidentally, also ovulation, is well known.

Summary

Since all available evidence appears to show that vitamins are of paramount importance to poultry farmers, whether they are commercial egg-producers, breeders or fanciers, it only remains to explain in a few words what are the practical results of the study of vitamins and to indicate the sources from which vitamins can be most easily obtained for the purpose of feeding poultry on hygienic principles.

That vitamins are essential in poultry-feeds is evident, for the following reasons:—

(1) Because hens which are fed on suitably balanced food, with a due consideration of its vitamin content, show a greater egg productivity. As the result of field observations one may reasonably surmise that they are healthier and more resistant to most infections.

(2) Because eggs which contain the right proportion of vitamins show a higher rate of hatchability on artificial incubation.

(3) Because eggs which contain vitamins in suitable proportions are more nutritious and better food value. This fact is of definite interest in relation to the nutrition (and health) of the nation.

* * * * *

For *vitamin A* the most easily available sources are green grass, corn and yellow maize. In addition, good grades of cod-liver oil, and, to a smaller extent, skim milk, which, however, is more valuable from the standpoint of its protein and mineral content.

For *vitamin B* one can rely on the outer covering of wheat, that is, bran and middlings. Baker's yeast is also a good source. Even here variations occur according to grade, and it may be kept in mind that the requirements of fowls are relatively large.

For *vitamin C* it is obvious that either fresh grass or sprouting wheat should be considered; lettuces and watercress are excellent for this purpose, but rather expensive for commercial use.

Vitamin D is, of course, best supplied by exposing hens to direct sunlight, when the vitamin is produced in the body. But since sunshine is not always available, a reliable grade of cod-liver oil is required for the winter, whilst additional feeds of grass in the open are sure to prove useful.

It may be noticed that all these requirements can be more easily obtained by placing the fowls on a free range, and this can be recommended if a strong and healthy breed is required. This is not always feasible, however, particularly if young chickens are to be reared for the poultry market. The alternative, then, consists in striving to imitate the composition of food obtainable on the field, which can be done by the supply of suitable vitamins, in addition to all other known important constituents.

(*To be concluded by Lecture No.* 3.)

Clinical Communications

CHOKING IN THE HORSE

F. C. SCOTT, M.R.C.V.S.
PONTEFRACT

A cart mare had shown symptoms of œsophageal obstruction over a period of 60 hours, and had received the usual attention, including periodic small doses of arecolin hydrobromide, without alleviation. The obstruction extended from about the fourth cervical vertebra onwards.

It was decided to attempt reduction by lavage; accordingly, the stomach tube was passed as far as the obstruction and sufficient warm water pumped in to cause the mare to show distress. The head was held low all the while, retching was induced, and about a cupful of beet-pulp was vomited with the injected fluid, whereupon the stomach tube passed two or three inches further into the œsophagus. This procedure was repeated and each time vomiting was induced until finally, after about half-an-hour's persistence, the tube passed freely into the stomach. The mare showed an elevation of temperature on the next day, probably due to some foreign material which had got into the trachea being

absorbed, but after one intravenous injection of iodine, the temperature returned to normal and recovery has been uninterrupted.

Reference to this "gullet washing" is made in veterinary literature, and with care I consider it less dangerous than is generally imagined. Cases occur where hours may have to be spent before relief is obtained, especially where dry, husky oats are the cause, but one should persist so long as the patient does not show undue distress. The "lavage" has a three-fold purpose; firstly, to supply fluid to soften; secondly, to get syphonage of some of the softened material; and thirdly, to induce vomition. Where the case has been mistakenly diagnosed as "colic" by the owner, and drenches have been administered—without wasting a drop—chances of success are gone, in consequence of the almost inevitable development of gangrene of the lungs.

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A NOTE ON MILK FEVER

F. C. SCOTT, M.R.C.V.S.
Pontefract

Periodically one is called to what one considers to be a typical case of milk fever—a cow, 24 hours calved, has gone down in the usual way, is inflated, but, at the expiration of eight hours, is reported to be still down and to have been tossing about in the meantime. On further inspection one is satisfied that although there is a certain amount of wildness, there is no suggestion of convulsions, and one is inclined to be satisfied that the case is not one of lactation tetany, but the response to magnesium treatment makes one revise this notion. Magnesium lactate, given intravenously in doses of 1 ounce dissolved in 1½ pints of water at body temperature, has a marked anodyne effect before the administration is complete—say, ten minutes. The patient sleeps for about six hours and then begins to carry herself normally, and soon is eating and inclined to rise.

Symptoms simulating milk fever in heffers are always looked upon sceptically by veterinary surgeons. A recent case had showed preliminary wildness, and an inclination to chase mankind; she was one day calved, when she went down in lateral recumbency, showed quickened respiration, dulness of the eye, sweating and delirium. Less than twelve hours later this heifer was normal, and the treatment applied was the magnesium one.

A prophecy that North-West Europe would become the chief wheat-growing area of the world, because of its favoured position with regard to nitrogen fertilising, was made by a scientist to Mr. H. Bolland, Chairman of the Harrogate Electricity Committee, who has recently visited Sweden and Denmark to investigate the use of electricity on farms in those countries.

Abstracts

[**The Egg as a Food.** (Trans. title.) Binet. (1933.) *Recueil de Méd. Vét. de l'Ecole d'Alfort.* clx. No. 7. 404-407.]

From an alimentary point of view, the egg is the subject of much dispute (from a toxic product to a food of the finest quality for young and old). However, on account of well-authenticated work upon the physiology of an egg, one is able to state the importance and variety of the nutritive principles in a hen's egg.

The author describes the structure of an egg. Concerning the shell, he speaks of the adverse effect of daylight on the pigment in the shell (seen by Wood's radiation as a bright red colour when the egg is fresh). Theoretically, "an egg is sterile," but is liable to external contamination through its shell, which latter also permits passage of gases and liquids.

The two membranes are next described, with the air chamber. It is less permeable than the shell.

White of egg is made up of 12 per cent. albumen, and 88 per cent. water. The most important albumen is ovalbumen (can be obtained in a crystallised state). Cleavage of ovalbumen produces two amino-acids—lysine, and tryptophane; the first is indispensable to growth, and the second to conservation of weight.

Raw albumen resists digestion, but when cooked it is readily broken down. This explains why some people cannot tolerate a raw, or imperfectly-cooked egg, but only one well cooked.

Yolk of egg contains the most nutritious constituents. It represents 40 per cent. of contents of egg, and only contains 51 per cent. water. Ovovitelline forms 15 per cent. of the yolk. Its colour is due to a phosphorus- and iron-containing substance known as hæmatogene (considered as embryonic hæmoglobine). Hæmatogene is a therapeutic substance for man in anæmias. Yolk contains 14 cgms. of iron per 100 grms.

Yolk also contains true fats 21 per cent., and lecithins (phosphorised fats) 8 per cent. Lecithins contain two glycerophosphoric acids, A and B, the latter being four times more abundant than A. Glycerophosphate B is therapeutic for asthenia, intellectual prostration, and depressive nervous disorders.

Cholesterin is present in fresh yolk to the extent of 1·4 per cent.

Egg contains little sugar (either free or combined with albuminous matter), and very little mineral matter: chlorine is present 15 cgms. per 100 grms. in white and yolk, and egg can therefore be included in hypochlorine diets.

In addition, egg contains vitamins and ferments. Of vitamins, A and provitamin A (carotene), B, D and E are all present in an egg, and described. Numerous ferments, capable of

splitting up starch and cane sugar, are present. Egg can reinforce digestive ferment action (zymosthenic action of egg).

More recently an anti-diabetic substance has been isolated.

Recent research has found an antibacterial ovalysin (lysozome). This is only found in white of egg. It resists digestive ferments. Further work is necessary to establish the significance of lysozome.

The author states that a good hen's annual egg production may equal ten times her weight.

The comparative food values of egg and other common foods are given.

The article concludes by reference to concepts of the ancients concerning eggs as a food: "An egg of first day equals a golden egg, of second day a silver egg, of third day an iron egg. They did not eat eggs older than three days."

Reference is made throughout the article to the principal investigators of the subject dealt with.

C. V. W.

* * * * *

[**Vitamin D: Its Ill Effects in Fowls.** Siefried, O., and Heidegger. *Tierärztl. Rundsch.* No. 11. (1933.) pp. 171-173.]

Much work has already been done on the effect of too much or too little vitamin D in the ration of experimental animals.

According to the literature, which the authors briefly review, the cat is very susceptible to an excess of the vitamin, the rabbit less so and the guinea-pig least of all, whilst fowls have tolerated large doses without effect. Nevertheless, although macroscopic observation is useless in such cases, an histological examination has revealed changes in certain organs. In order to clear up many points of doubt controlled experiments were therefore planned to study the effect of both an excess and a deficiency of vitamin D.

Since an excess over a short period appeared to have little effect, especially in adult birds, young Leghorn chicks, 15 days old, were fed 5 c.cms. of a vitamin-containing liver preparation daily and subjected to irradiation with a quartz lamp for half-an-hour.

Four birds died during the fifth month, two of which showed signs of anæmia, typical deposits of calcium salts being observed on histological examination.

In both the hyper- and hypo-vitaminosis groups, findings, after six months, were similar. Deposits of calcium salts, which appeared to have a predilection for elastic tissue, were detected by appropriate methods of staining. Although the spleen, which was greatly shrunken and having a wrinkled capsule, was the organ most markedly affected, the arteries and the capsule being directly involved, deposits of calcium salts were found in the epicardium and the smaller arteries and arterioles of the lungs, kidneys and ovaries.

The etiology of these phenomena is discussed briefly, but no conclusion is reached. Four good photomicrographs accompany the text.

N. S. B.

H.M. STATIONERY OFFICE PUBLICATIONS.

The undermentioned have been published recently. Copies can be purchased through any bookseller, or directly from H.M. Stationery Office, at the following addresses: London: Adastral House, Kingsway, W.C.2, and 28, Abingdon Street, S.W.1; Cardiff: 1, St. Andrew's Crescent; Manchester: York Street; Edinburgh: 120, George Street.

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PERCHERON SOCIETY

A balance in favour of the British Percheron Horse Society of £1,650 was reported at the annual meeting of members of the Society held at Derby. As members of the Council for three years the following have been elected: Sir John Buchanan-Jardine, Mr. W. Parkin-Moore, Brigadier-General Winser and F. Russell Wood. As President, Sir Henry Hoare took office, and Mr. Duncan M. Stewart was appointed President-elect. It was decided to hold the annual sale at Histon, Cambridge, on Wednesday, September 20th, and to institute a foal show in connection with the sale, with classes for pure-bred and half-bred colt and filly foals.

ROYAL COLLEGE OF VETERINARY SURGEONS

Meetings of Council

PROFESSOR GAIGER'S ELECTION AS PRESIDENT

A meeting of Council was held at the College, 10, Red Lion Square, London, W.C.1, on Thursday, July 6th, 1933, when there were present Professor J. B. Buxton (President) in the chair; Lieut.-Colonel J. W. Brittlebank, Captain J. C. Coleman, Professor J. F. Craig, Mr. A. A. Donnelly, Major G. W. Dunkin, Professor S. H. Gaiger, Messrs. J. Holroyd, R. Hughes, Major W. H. Kirk, Messrs. G. H. Livesey, G. H. Locke, Sir John M'Fadyean, Mr. J. W. McIntosh, Professor J. Macqueen, Mr. G. P. Male, Major A. B. Mattinson, Captain T. M. Mitchell, Mr. W. Nairn, Dr. J. Share-Jones, Dr. A. Leslie Sheather, Lieut.-Colonel P. J. Simpson, Captain R. Simpson, Major A. Spreull, Captain W. K. Townson, Colonel G. K. Walker, Dr. A. W. Whitehouse, Mr. J. Willett, Professor G. H. Wooldridge and Captain W. G. Wragg.

The minutes of the previous meeting, having been printed and circulated, were taken as read and signed as correct.

Welcome to New Members.—The President, on behalf of the Council, welcomed Captain W. K. Townson and Major A. B. Mattinson, the newly-elected members of Council.

Vote of Thanks.—On the motion of the President, it was resolved: "That the Council put on record their high appreciation of the services rendered to the Council by Mr. Trevor S. Spencer and Major D. S. Rabagliati during their period of service as members of Council."

Election of President

The Council resolved itself into Committee for the consideration of the report of the Nominations Committee.

On resuming the sitting of Council, Colonel Brittlebank said: I have much pleasure in proposing that Professor S. H. Gaiger be elected President for the ensuing year. (Loud applause.) Professor Gaiger has, ever since he was qualified, given of his best to the service of his profession. I feel sure that he will command that loyalty and support which has been the lot of every President who has occupied the chair. At the same time, may I also say how much I appreciate the loyal way in which you, Professor Buxton, have served this Council. I think the members of this Council will agree that, going back for a good many years and without making any invidious comparisons, I can remember no man who has given himself so unstintedly to the profession. (Hear, hear.) Your greatest work, the carrying through of the five years' course, will be a monument to your labours, and we hope that the development of that scheme will be a satisfactory reward for all the work you have done. (Applause.)

Mr. Hughes: May I be allowed to second that.

The President: Are there any other nominations? If not, I will put the motion to the meeting. It has been proposed and seconded that Professor Gaiger be elected President for the ensuing year. All those in favour, please signify. I declare Professor Gaiger unanimously elected.

Professor Gaiger was then called to the chair and invested with the President's robe and chain of office by the retiring President, who congratulated him on his election.

Professor Gaiger: Gentlemen, I wish to thank you for the great honour you have conferred upon me. I shall do my best to carry out the duties of this high office.

Election of Vice-Presidents.—It was unanimously resolved: "That Professor J. B. Buxton and Mr. G. H. Locke be elected Vice-Presidents for the ensuing year."

Vote of Thanks to the Retiring President.—Colonel Brittlebank: I think that we should place on record that this Council has passed a special resolution of thanks for the work done by Professor Buxton during his year of office. I beg to move that

Mr. Willett: May I be allowed to second that.

The President: May I also be allowed to support that. Looking over past history, no one has given so much of his time and ability to the profession as Professor Buxton.

The motion was thereupon carried with acclamation.

Professor Buxton: May I say that I very deeply appreciate this vote of thanks, and that it is a great pleasure to know that one has been able to do something for the profession. One hopes that in time it may be possible to do a little more.

Election of Honorary Treasurer.—Colonel Brittlebank: May I have the pleasure of proposing the re-election of Colonel Simpson as our Treasurer for the ensuing year.

Mr. McIntosh: I second that.

The proposition was carried with acclamation.

Election of Secretary and Registrar.—Professor Buxton: I move the re-election of Dr. Bullock. It is only those of us who have had to carry the burden of office and have had to lean on Dr. Bullock, who really appreciate the yeoman service that he does on our behalf, and it is with the greatest pleasure that I move his re-election as our Secretary and Registrar.

The President: That, I am sure, requires no seconder.

The motion was carried unanimously.

The President: That concludes the business of this Council meeting.

* * * * *

QUARTERLY MEETING OF COUNCIL

A Quarterly Meeting of Council of the Royal College of Veterinary Surgeons was held at 10, Red Lion Square, London, on Friday, July 7th, 1933, at 2 p.m., Professor S. H. Gaiger, President, occupying the chair.

There were present: Lieut.-Colonel J. W. Brittlebank, Professor J. B. Buxton, Captain J. C. Coleman, Professor J. F. Craig, Mr. A. A. Donnelly, Major G. W. Dunkin, Professor F. T. G. Hobday, Messrs. J. Holroyd, R. Hughes, Major W. H. Kirk, Messrs. G. H. Livesey, G. H. Locke, Sir John M'Fadyean, Mr. J. W. McIntosh, Professor J. Macqueen, Mr. G. P. Male, Major A. B. Mattinson, Mr. W. Nairn, Dr. J. Share-Jones, Dr. A. Leslie Sheather, Lieut.-Colonel P. J. Simpson, Major A. Spreull, Captain W. K. Townson, Colonel G. K. Walker, Dr. A. W. Whitehouse, Captain W. G. Wragg, Mr. J. Willett.

The minutes of the previous meeting were taken as read and signed as correct.

The Secretary reported that apologies for absence had been received from Major J. Abson, Dr. O. Charnock Bradley, Mr. Dodd, Mr. Dolan and Captain Simpson.

Obituary.—The Registrar read the list of Fellows and members of the College whose deaths had been reported during the quarter.

The members stood while the list was being read.

Lieut.-Colonel J. W. Brittlebank: Amongst the names which have just been read out there is one who was for a time a member of this Council, the late Mr. John Smout Lloyd. Mr. Lloyd's period of service, it is true, was short, being only four years, but he did much distinguished work for the profession, apart from the valuable work he did on this Council. He was in some respects a pioneer, and I think it would be fitting to place on record our great regret at his death, and to convey to his relatives our sympathy. I move accordingly.

Mr. R. Hughes: I should like to second that.

The members signified their approval by standing in silence.

Correspondence.—An invitation was received from the Secretary of the International Cancer Congress to be held in Madrid from October 25th to 30th.

The President: I do not suppose it is your wish that we should appoint a delegate to this Congress.

The Council agreed.

Reports of Committees

Finance and General Purposes Committee.

Mr. J. W. McIntosh (Chairman) read the following report of a meeting of the Finance and General Purposes Committee, held on July 7th, and moved that it be received and adopted.

The minutes of the previous meeting, having been printed and circulated, were taken as read and signed as correct.

House Sub-Committee.—The following report of the House Sub-Committee was read and adopted:—

> The minutes of the previous meeting, having been printed and circulated, were taken as read and signed as correct.
>
> *Additional Accommodation.*—The Secretary reported that he had ascertained that at present there was no suitable accommodation available at No. 9, Red Lion Square. It was resolved to recommend "That the Secretary be instructed to make further enquiries."
>
> *Use of Library.*—It was resolved to recommend "That owing to the increasing weight of books on the second floor of the building, the Finance Committee should seriously consider the advisability of permitting meetings of professional societies to be held in the Library."
>
> It was resolved to recommend the provision of a telephone bell in the basement corridor.

Use of Library.—It was resolved: "That in the opinion of this Committee it is undesirable that meetings of professional societies should continue to be held in the Library of the College, and that due notice should be given that the Library cannot be used for that purpose in the future.

The Sub-Committee appointed to consider the provision of a superannuation insurance for the assistant secretary reported that they had considered several schemes and had adopted a scheme submitted by the Guardian Assurance Co., Ltd., the premium payable being £35 19s. 7d. per annum, of which the assistant secretary contributes one-third, the Council being credited with agent's commission.

Financial Statement.—The Treasurer submitted his Financial Statement for the quarter, showing a balance in hand of £242 1s., in addition to £1,104 10s. 9d. on deposit, and liabilities amounting to £281 13s. 9d.

The Treasurer's statement was approved, and he was ordered to pay the liabilities shown, together with cheques for current expenditure.

Investments.—The Treasurer was authorised to invest the sum of £1,000 in a suitable security.

Annual Fees.—The Secretary submitted the cases of two members who each owed £6 6s. in respect of annual fees. It was resolved that the necessary proceedings for the recovery of the amounts due be taken through the county court.

Cost of Practical Examinations.—The Secretary reported that the Sub-Committee appointed by the Examination Committee had recommended the following scheme for the payment of the cost of practical examinations in the first year:—

> Payment of £2 2s. to each of the Internal Examiners for each day or part of a day occupied in supervising the practical examinations, together with a capitation fee for the provision and preparation of specimens, the capitation fee in Chemistry to be 1s. per pupil and in Biology 2s. 6d. per pupil.

The scheme was approved.

The Secretary submitted an estimate from Messrs. Le Roy et Fils for repairs to the President's Badge, amounting to £3 10s., which was accepted.

Stained Glass Windows.—The Secretary reported that the stained-glass windows in the Council Room were in urgent need of repair and he submitted an estimate from Mr. C. E. Moore for the repair of the three windows, including re-painting and replacing the broken glass, at a

cost of £7 10s. It was agreed that the estimate be accepted and that the work be put in hand at once.

Ventilation of Council Room.—It was resolved that two electric fans to distribute the air in the Council Room be provided and that the matter be left in the hands of the Chairman and Treasurer with authority to put the work in hand.

Gift of Pictures.—Professor Buxton reported that on June 16th he had received a letter from Mr. Louis Gautier stating that one of his clients had in his possession nine very fine, signed proof engravings by Landseer, of horses, dogs and other animals, framed, and in excellent condition, which he wished to offer as a gift to the Royal College of Veterinary Surgeons. Professor Buxton stated that, as President at the time, he had written to accept the offer.

The action of the President was approved and the Secretary was instructed to express to Mr. Louis Gautier and to his client the grateful thanks of the Council for the handsome gift.

Membership Examination Fees.—On the proposition of Lieut.-Colonel P. J. Simpson, seconded by Lieut.-Colonel J. W. Brittlebank, it was resolved to recommend, for the consideration of the Examination Committee, "That provision be made for all students' examination fees to be paid direct to the Royal College of Veterinary Surgeons at least four weeks before the date of the written examination."

The Secretary reported that he had received a request from Dr. Jonescu Braila, of Bucarest, an Honorary Associate of the College, for a photograph of the stained-glass windows in the Council Room.

It was agreed to obtain photographs after the repair of the windows and to despatch copies of these to Dr. Jonescu Braila with the Council's good wishes.

Mr. J. Willett seconded the motion.

The Treasurer: The report does not state the reason why the House Sub-Committee came to the conclusion that meetings should no longer be held in the Library. I should like to say, therefore, for the information of those who do not know, that the reason is the growth of the Library. Books are accumulating daily, and the weight of them is growing in proportion; and it has now assumed such dimensions that, in the opinion of the Sub-Committee, it is unsafe to have meetings of any large number of members in the Library.

Professor J. Share-Jones: Do I understand that the Committee contemplate the expenditure of any considerable sum of money on an extension of the present premises?

The President: I think the position is that we are only making inquiries.

Professor Share-Jones: Does that mean that there will be an opportunity for the Council to consider the question of securing bigger and more adequate premises altogether?

Mr. McIntosh: A sub-committee was appointed to investigate the whole matter and report to this Council at a later date. At present they have not completed their inquiries and are not able to submit a final report. This is merely a progress report.

The report, as amended, was adopted.

Examination Committee.

Professor J. Macqueen (Chairman) presented the following report of the Examination Committee, and moved that it be received and adopted:—

The minutes of the previous meeting, having been printed and circulated, were taken as read and signed as correct.

Correspondence.—(*a*) A letter was received from the Secretary of the Royal Veterinary College requesting permission for a person other than the principal teacher of a subject to be present at the oral examination in a specified subject.

It was resolved "That the Council is unable to accede to the request."

(*b*) A letter was received from the Secretary of the Board of Veterinary Studies at the University of Liverpool enclosing a list of veterinary surgeons with whom Liverpool students had seen practice during the vacations of the session 1932-33.

Reports of Sub-Committees

(*a*) D.T.V.M.—The sub-committee appointed to consider the regulations for the Diploma in Tropical Veterinary Medicine reported that they had agreed to the following classification of subjects to be included in the examination for the diploma:—

Section I.—*Parasitology*:—
- (*a*) Protozoology.
- (*b*) Helminthology.
- (*c*) Entomology.

Section II.
- (*a*) Pathology and Bacteriology.
- (*b*) Animal Husbandry, Hygiene and Epizootiology.
- (*c*) Toxicology.

A further report will be submitted to the next meeting of the Committee.

(*b*) Practical Examinations.— The Secretary reported that the Finance Sub-Committee had drawn up a scale of payments to cover the cost of preparation of specimens and supervision of the practical examinations in Chemistry and Biology as follows:—

Payment of £2 2s. each to the internal examiners for each day or part of a day occupied in supervising the practical examinations, together with a capitation fee for the provision and preparation of specimens; in the case of Chemistry the capitation fee to be 1s. per pupil, and in Biology 2s. 6d. per pupil. This scheme had been submitted to the principals of the schools and provisionally accepted by them.

D.V.S.M. Examination.—The Secretary read the report of the Chairman of the Court of Examiners for the D.V.S.M., showing that at the examination held in Edinburgh from June 8th-13th, seven candidates presented themselves, and that the following had been successful: Ernest Beaumont, Joseph B. Caffrey, E. M. Mackay.

The examiners recommend that the candidates who failed to obtain the diploma should, before presenting themselves for re-examination, be required to pursue further courses of study as follows:—

Candidate No. 1.—Six weeks' instruction in the subjects of Group II.
Candidate No. 3.—The full D.V.S.M. course.
Candidate No. 6.—Six weeks' instruction in all subjects.
Candidate No. 8.—Six weeks' instruction in the subjects of Group I.

The report was approved.

Fellowship Examination.—The Secretary reported that seven entries for the Fellowship

Examination had been received during the quarter, and reports by the examiners had been received in respect of the following.*

No. 88. J. S. Steward.—Thesis entitled "*Onchocerca cervicalis* Railliet and Henry 1910, its Life History and Occurrence in cases of Fistulous Withers and Poll Evil in Horses."

Report of Examiners.—"The thesis is generally and specifically of such excellence as to justify the exemption of the candidate from any further test."

No. 89. R. E. Glover.—Thesis entitled "A Study on Tuberculin with special reference to the Double Intradermal Test."

Report by Examiners.—"The thesis, together with the other contribution submitted by the candidate, is generally and specifically of such excellence as to justify the exemption of the candidate from any further test."

No. 90.—"The thesis cannot be accepted as reaching Fellowship standard."

No. 93.—"The thesis cannot be accepted as reaching Fellowship standard."

The reports of the examiners on Theses Nos. 92 and 94 have not yet been received.

It was resolved "That the reports of the examiners in the case of Theses Nos. 88, 89, 90 and 93 be approved, and that the Fellowship Diploma be conferred on Mr. J. S. Steward and Mr. R. E. Glover."

Thesis No. 91.—The examiners of thesis No. 91 report that the major part of this thesis has already been published under the joint names of the candidate and another research worker. The request of the examiners for instructions as to what action they should take in such circumstances was considered in view of an explanation submitted by the candidate.

It was resolved "That the Secretary be instructed to reply to the examiners that the matter is entirely one within their discretion."

Educational Certificates.—A list of educational certificates Nos. 4,192-4,218 was submitted by the Secretary, having been registered as complying with the bye-laws. The list was approved.

Concessions.—(*a*) *D.V.S.M.* An enquiry was received as to whether exemption from any part of the course for the Diploma in Veterinary State Medicine can be granted in respect of the work required in the final year for the degree of B.V.Sc. of the University of Liverpool. The Secretary was instructed to reply that, as the course for the degree of B.V.Sc. is not a course for a public health diploma, no part of it could be recognised as exempting from any part of the course for the D.V.S.M.

(*b*) *Bye-law 95.*—(i) An application was received from a holder of the degree of B.V.Sc. of Pretoria, asking what courses he would be required to take in order to obtain the diploma of this College. The Secretary was instructed to reply that, in accordance with the bye-law, the candidate must make a proper application, duly attested, and on receipt of such an application his enquiry would receive due consideration.

(ii) An application was received from a holder of the Diploma of L.V.P. of the Lahore Veterinary College, for exemption under Bye-law 95. The Secretary reported that he had already informed the candidate that the diploma of L.V.P. was not recognised as an approved diploma under the provisions of this bye-law.

The Secretary's reply was approved.

(*c*) *Bye-law 62.*—The Secretary submitted correspondence from prospective applicants for a concession under this bye-law as to the conditions on which exemption would be granted to holders of Higher Leaving Certificates. It was resolved "That the Secretary be instructed to submit to the examiners in Chemistry and Biology copies of the syllabuses in these subjects for the examinations for Higher Certificates, and to request their observations as to whether the syllabuses are of equal standard to that laid down for the first examination."

Reserve Examiners.—The Secretary submitted a draft list of Reserve Examiners prepared by the Chairman, but the consideration of the matter was deferred to the next meeting, the Secretary being instructed to circulate the list to the members of the Committee with the agenda.

Walley Memorial Prize Regulations.—It was resolved "That application be made to the Board of Education for an amendment of the scheme for the award of the Walley Memorial Prize consequent upon the recent alterations in the curriculum."

Captain J. C. Coleman seconded the motion.

Mr. J. Holroyd: Is it customary for the reports of examiners to appear in these minutes?

The Secretary: Bye-law 103 provides that the examiners shall set forth the reasons for their recommendations, giving the full grounds, and the Examination Committee "shall have power in such cases to exempt the candidate from any further test." The bye-law compels the Secretary to present the full report of the Examination Committee and to show the grounds on which recommendation for exemption from oral examination is made.

Mr. Holroyd: Does the Examination Committee not make a recommendation to this Council on those reports without forwarding the reports to the Council? I think it is very undesirable to have all the reports of the examiners published in the minutes of this Council.

Professor Whitehouse: The reports on unsuccessful candidates are not intelligible. We do not know what the subject was, though we have some remarks on how badly the candidate has treated it. I think that might be cut out.

There is one point on which I should like to make a correction in the Committee's report, with regard to the correspondence with the principals of colleges relating to the allowances to be made to the examiners in Biology and Chemistry. The report says that the principals of colleges agreed to what was proposed, but I think you will find, if you read my letter, that I was very wary; I forwarded you the letters from two examiners saying they would accept them for the time being and see how things went. We did not unconditionally agree to those allowances, and, to be perfectly correct, I think the report should say "provisionally" or "conditionally."

The President: We had better deal with Mr. Holroyd's point first, and perhaps the Secretary will say why it is necessary to incorporate details with regard to these theses.

The Secretary: I think it is not necessary.

* The detailed reports of the examiners have been omitted from this report: *vide* motion *infra*.

The minutes of the Examination Committee ought, I think, to contain all the important matters, but in its discretion this Council may say that it is content not to have the grounds on which the recommendations are made.

Mr. Holroyd: I move that the reports of examiners be deleted from this report.

Lieut.-Colonel Brittlebank: Would Mr. Holroyd amend that and say that the reports on unsuccessful candidates be removed? I think it is nice to have the reports on those who are successful, and particularly the very excellent report which we have here on one candidate, but I think it would be very much better if the reports on unsuccessful candidates were not incorporated.

Mr. Holroyd: I will accept that.

Lieut.-Colonel Brittlebank: Then I shall be pleased to second that proposition.

Mr. G. P. Male: Am I right in thinking that what Mr. Holroyd objects to is publication in veterinary papers? A lot of things appear in the reports which are never published, and which it would be very undesirable to publish.

Sir John M'Fadyean: I do not understand what is the objection to these things appearing in the report, unless it is thought that it is a waste of time. I do not think any harm is done to anybody. I notice we were not given the names of those who were unsuccessful, and I suggest that we should continue to receive this information. It is true that the candidates who fail will know what has been said, but they probably know that already.

Mr. Holroyd. I was frightened of this report being published; I did not want it to be kept from any member of this Council. As a rule, however, what has taken place in open Council is published, or liable to be published.

Professor Share-Jones: Are the names published?

The Secretary: In the case of successful candidates, yes.

Sir John M'Fadyean: Is it not useful, for the sake of possible future candidates, to publish the information? It will give future candidates some hint of what they should do and what they should avoid in writing theses.

The President: I understand that what Mr. Holroyd suggests is what is being done at present, namely, that the full report is read here but is not published in the press. Sir John makes a different suggestion.

Sir John M'Fadyean: I understood it was suggested that we should adopt a new course.

Professor Buxton: I should like to explain that we have in the past published these reports in the press, and frankly I fail to see why we should desire not to publish them. It seems to me that if the candidate earns immunity from the examiners there can be no reason why he should not know and why others should not know. Candidates who have not succeeded are referred to by numbers, and no one outside this office knows who No. 91 is. I really cannot see how any disservice is done by publishing the reports.

Colonel Walker: I take it the candidates themselves receive these criticisms?

The Secretary: After the report has been passed by the Council.

Colonel Walker: If the candidates receive the information, I think that meets Sir John's point, and I am in agreement with those who do not want these things to go beyond the candidates.

Professor Macqueen: The progress of this institution has suffered in times past through want of publicity, and if we had continued to publish items of interest to the profession generally we should be in a better position to-day. I see no objection to publishing the results so long as the names are not given. Unsuccessful candidates are referred to by numbers in the report, and the opinions of the examiners ought to do future candidates some service.

Colonel Walker: If the candidate receives the information, what possible object is served in giving it to a number of people who do not know who the candidate is?

Dr. Sheather: Is not the report of the Examiners confidential to the Council?

The President: It is the custom to publish the names of the successful candidates only. The unsuccessful candidates are referred to by numbers.

Mr. Holroyd: I am not concerned with the publishing of the names of successful or unsuccessful candidates; I am concerned with the reports of the Examiners to the Examination Committee which have been read out to-day, and I want to move that the reports of the Examiners to the Examination Committee be not recorded on the minutes at this Council meeting.

The Secretary: I think you mean they should be on the minutes but not be published?

Mr. Male: I will second that. I think it is very undesirable to publish what, after all, is a matter of form, that an essay is of such a standard of literary presentation and so on, that the candidate need not be examined again. Some people might take that as a specially eulogistic comment on a particular essay, whereas it is simply a note from the Examiners that the candidate need not be further examined.

Sir John M'Fadyean: How can anything which is published serve to identify a candidate who is referred to by a number? How is any person other than the candidate to identify who is meant? And, if that is the case, there is no harm in this.

The President: In the cases Mr. Holroyd refers to the names are published, because he includes the reports of the Examiners on successful candidates.

Mr. Holroyd: I do not want any reports published.

Sir John M'Fadyean: There can be no conceivable objection to giving publicity to the fact that a candidate has succeeded in this examination. I submit that no harm is done, and that this information is useful to future candidates.

Major Hamilton Kirk: One reason for publishing the reports is that they will be an instruction to other members who wish to obtain the Fellowship on what grounds they may fail. They will see on what grounds their thesis may fail, and that will be a help to them.

Mr. Male: I think it is undesirable, because most of the friends of the candidate will know that he has gone in for this examination, and if he is unsuccessful and they see some of the comments which we have heard to-day, it is not very nice for the candidate. Personally, I think the Examiners' reports are confidential to the Council, and should not go beyond it.

Dr. Sheather: That was the question I asked, and which was not answered.

Professor Share-Jones: If the reports of Examiners are confidential to the Council, that will apply equally to the reports on successful candidates. It might be a protection to the Examiners.

The President: That is what is embraced in Mr. Holroyd's motion. I will now put to the vote the motion proposed by Mr. Holroyd and seconded by Mr. Male.

Lieut.-Colonel Brittlebank: What becomes of his original motion, which I seconded? If he wishes to withdraw it I do not object.

Mr. Holroyd: I do wish to withdraw it.

Lieut.-Colonel Brittlebank: Very well.

The President: Then the motion before us is to the effect that all reports by Examiners on these theses, whether the candidate is successful or not, shall be treated as confidential and not published.

The motion was carried by a majority.

The President: Is there any further discussion on this Report?

Professor Whitehouse: There is the point which I raised, on which I have said all I wanted to say.

The President: You wanted to draw attention to the fact that you did not give unqualified acceptance of the allowances made to the internal examiners in Biology and Chemistry.

Professor Whitehouse: Yes. We wanted to consider them after we saw how they turned out.

Professor Buxton: It is only a tentative arrangement so far as this College and the schools are concerned.

Professor Whitehouse: If that is understood, it is all right.

The motion for the acceptance and adoption of the Report of the Committee was then put and carried.

Registration Committee.

The Secretary read the Report of the meeting of the Registration Committee, held on Wednesday, July 5th, as follows:—

The minutes of the previous meeting, having been printed and circulated, were taken as read and signed as correct.

Cases.

N.22a. "Late R.V.C. Canine and Feline Specialist." The Solicitor submitted correspondence he had received in this case and was instructed to point out to the defendant's Solicitors that the use of the letters "R.V.C." was objectionable and to request that in view of the previous undertaking given, the use of these letters should be discontinued.

N.70. "Veterinary Practitioner." The Solicitor reported that he had not succeeded in obtaining an undertaking in this case, which was ordered to be struck out.

N.78. Using letters "M.R.C.V.S." The Secretary reported that the offence in this case had been discontinued.

N.84. Newspaper description as "Veterinary Surgeon." The Secretary submitted correspondence he had had with the Editor of a newspaper which had wrongly described an unregistered person as a veterinary surgeon. He had, however, failed to secure the publication of a correction of the error.

N.85. Using letters "M.R.C.V.S." A satisfactory undertaking was submitted in this case.

N.86. Advertising "Veterinary Services Free." A satisfactory undertaking was received in this case.

N.87. "Veterinary Specialists." The Secretary was instructed to require an undertaking in this case.

N.88. Use of letters "M.R.C.V.S." by unqualified person. The Secretary was instructed to point out the provisions of Bye-law 53 (3) and to request immediate compliance therewith.

Correspondence.—Correspondence was submitted and the Secretary was instructed as to the replies to be sent.

Professor Buxton: I beg to move that this Report be received and adopted.

Lieut.-Colonel Brittlebank seconded the motion, which was carried unanimously.

The Secretary then read the Report of the meeting of the Registration Committee, held on Thursday, July 6th, as follows:—

The minutes of the previous meeting, having been printed and circulated, were taken as read and signed as correct.

Cases Against Members.

2503. Alleged advertising. It was resolved "That this member be called upon to submit an explanation."

2509, 2512, 2514, 2518.—In each of these cases a report, submitted in accordance with Home Office instructions, was received, informing the Committee of convictions recorded against these members on charges of being under the influence of drink to such an extent as to be incapable of having proper control of a motor vehicle. Letters of explanation were received from each member, but it was resolved "that the Secretary be instructed to warn each member that if any similar report should be received in the future, the Committee will be compelled to take a serious view of the offence."

2510. Alleged incorrect certificate of soundness. It was resolved "that this member be called

upon to appear before the Committee at its next meeting."

2511. Alleged covering. It was resolved "That this member be called upon to appear before the Committee at its next meeting to answer a charge of a breach of Bye-law 53 (iii)."

2513. Police Court conviction. The Secretary read a report submitted by the Chief Constable of Edinburgh, in accordance with Home Office instructions, to the effect that this member had been convicted of being under the influence of drink to such an extent as to be incapable of having proper control of a motor vehicle, and was fined £15 or 30 days' imprisonment.

The Secretary stated that he had informed the member that the report would be submitted to the Committee together with any observations which he wished to make, but that no letter had been received from the member.

The Secretary was instructed to inform the member that unless a satisfactory explanation is received, the Committee will be compelled to take the case seriously into consideration under the powers vested in them by Section 6 of the Veterinary Surgeons' Act.

2515. Alleged unprofessional conduct. This case was deferred for further enquiry.

2516. Police Court conviction. The Secretary submitted a report of a conviction against this member for an offence under the Road Traffic Act, but no action was taken. He was instructed that in future trivial cases of this kind need not be brought before the Committee.

2517. Alleged breach of Bye-law 53 (iv) by publication of testimonial. The Secretary submitted an explanation from this member, together with an undertaking from the publishers that the offence would be immediately discontinued. The undertaking was accepted.

Application for Restoration.—An application was received from Mr. A. V. Meeke for the restoration of his name to the Register, he having been removed by the Registrar under Section 5 (4) of the Veterinary Surgeons' Act, 1881.

It was Resolved to Recommend "That, subject to the affidavit submitted being properly completed, the application be acceded to.

Liverpool Free Treatment Scheme.—A letter was received from Mr. N. G. Michie with regard to the proposed Free Treatment Scheme in Liverpool, and it was resolved "That the Secretary be instructed to reply stating that the matter is not one which comes under the jurisdiction of the Council of the College."

Veterinary Advisory Officers.—A letter was received from the Secretary of the National Veterinary Medical Association enquiring whether the Council would co-operate with the Special Committee appointed by the Council of the National Veterinary Medical Association in considering the functioning of the scheme for Veterinary Advisory Officers and whether any further approaches should be made to the Ministry of Agriculture as the result of those deliberations.

It was resolved "That the Committee deems it inadvisable in the present circumstances to co-operate with the Special Committee of the National Veterinary Medical Association as suggested."

Professor Buxton: I beg to move that this Report be received and adopted.

Mr. Mattinson: If this Report is now adopted, will it be published? I think it is a serious thing to publish the names of people who are going to be brought here until they have been found guilty. I should not like to read in the *Veterinary Record* that "Mr. Mattinson is to be brought before the Council," until it had been proved I had done something wrong.

The President: The names are not published.

Mr. Mattinson: They are given in the Report as read.

The President: Only numbers are published.

The Report was adopted.

Parliamentary Committee.

Lieut.-Colonel Brittlebank (Chairman) presented the following Report of the Parliamentary Committee, and moved its reception and adoption:—

The minutes of the previous meeting, having been printed and circulated, were taken as read and signed as correct.

Report of Joint Sub-Committee.—An interim report of the Joint Sub-Committee was read.

The Chairman reported that it had not been found possible to call a further meeting of the Joint Committee during the present week, and he moved: "That the representatives of the Parliamentary Committee should withdraw from the Joint Committee."

This was seconded by Sir John M'Fadyean, and carried.

Parliamentary Bills.

(*a*) *Pharmacy and Poisons Bill.*—The Secretary reported that in Committee of the House of Commons an amendment had been proposed to this Bill, by Mr. Glossop, M.P., to provide for the appointment of a representative of the Royal College of Veterinary Surgeons on the Poisons Board, but that the amendment had been defeated. On behalf of the Council he had written to thank Mr. Glossop for his efforts on behalf of the profession.

(*b*) *University Degrees Bill.*—The Secretary submitted a copy of this Bill, which provides for the prohibition of the unauthorised use or issue of University degrees, and the unauthorised use or assumption of University degrees, titles or descriptions.

(*c*) *Jersey Veterinary Act.*—A copy of a new Act in respect of the exercise of the profession of veterinary surgery in the island of Jersey was submitted. The new law prohibits the practice of veterinary medicine in the island without having obtained the permission of the Royal Court, which in future will not be granted to persons other than those registered in the Register of Veterinary Surgeons.

Colonel Walker seconded the motion.

Mr. McIntosh: May we have some reason for the withdrawal of our representatives from the Joint Committee? No explanation is given in the Report.

Captain Coleman: I should like to support that request.

Lieut.-Colonel Brittlebank: There is no explanation to give, there was no discussion; the proposal was simply moved, seconded and carried.

Captain Coleman: I think it was said they had done all they could; it was thought they could render no further service, and that it would be better to withdraw and allow the National Association to carry on alone.

Lieut.-Colonel Brittlebank: I do not recollect it.

Captain Coleman: As it is put in the Report, it looks as though they had regretted having joined.

Lieut.-Colonel Brittlebank: So far as I am concerned, one of the reasons would be that as a political body the National Association would be better and stronger and able to act very much more expeditiously than in combination with this Council.

Mr. Willett: I think that should be added to the Report. What is said in the Report is so blunt.

Lieut.-Colonel Brittlebank: I agree.

Colonel Walker: I agree.

The President: I will put the Report amended in that way.

The Report, as amended, was adopted.

Library and Publication Committee.

Mr. G. H. Livesey (Chairman) presented the following Report of the Library and Publication Committee, and moved that it be received and adopted:—

The minutes of the previous meeting, having been printed and circulated, were taken as read and signed as correct.

Periodicals.—The following report of the Sub-Committee was read and adopted:—

> *Periodicals.*—The Sub-Committee considered the list of periodicals to which the Library subscribes, and it was resolved to recommend: "That the subscription to *Il nuovo Ercolani* be discontinued, but that no alteration be made in the rest of the list."

Librarian's Report.—The Librarian submitted his report for the quarter, shewing that 276 books had been sent out on loan, of which 161 were periodicals, and 96 text-books. Sixteen books had been loaned to the National Central Library, 16 to the London School of Hygiene, and four to the Medical Research Council. Three books had been borrowed for four members through Lewis's Library, and one through the National Central Library. Forty-eight visitors had signed the visitors' book during the quarter.

With the consent of the Chairman, Treasurer and Chairman of the Finance Committee, 29 unbound volumes of the *Tropical Diseases Bulletin* had been disposed of at a price of £11 11s.

The Librarian's report was approved.

Assistant Librarian.—The Chairman reported that Miss Sheather, the Assistant Librarian, had now passed her final examination for the University of London Diploma in Librarianship, and on behalf of the Committee, congratulated her on her success.

Presentations.—The following presentations have been made to the Library:—

By Mr. G. A. Tomlin: James's "History of Ophthalmology in England prior to 1800."

By Mr. Henry Gray: P. J. Bond's "Autobiographical and Other Notes," 1902.

By Major D. S. Rabagliati: Dumsday's "Dairies, Cows and Milkshops."

By Mr. T. J. Faithfull: His own work entitled "Psychological Foundations."

By Major A. Spreull: A copy of "Markham's Maisterpiece," 1630, fourth edition.

By the N.V.M.A.: *British Medical Journal, Tierärztliche Rundschau, Tijdschrift voor Diergeneeskunde, L'azione Veterinaria.*

In addition, 30 Reports, two sets of Collected papers, 52 pamphlets and reprints, and 46 Dissertations were received.

It was resolved "That an especial vote of thanks be passed to Major Spreull for his handsome donation, and the other members for their presentations."

Sale of Duplicates.—The Librarian announced that he had received a request for duplicate copies of the *Veterinarian* and the *Veterinary Journal*, and he was authorised to dispose of any available duplicates at a price of 5s. a volume.

Purchases.—It was decided to purchase the following volumes: Marshall and Wright: "Physiology of Farm Animals," 15s.; Beeman: "Veterinary Obstetrics and Zootechnics," 15s.; "Causal Factors in Tuberculosis," 2s.; "Animal Management" (War Office), 3s. 6d.

It was agreed to postpone the annual cleaning of books.

Library Conference.—The question of appointing a representative to the Conference of A.S.L.I.B. was left in the hands of the Chairman.

Mr. McIntosh seconded the motion, which was carried unanimously.

Appointment of Standing Committees

The President: We have now to appoint Standing Committees for the year.

The Secretary: The recommendations of the Chairmen's Committee which met, in accordance with the instructions of the Council, to consider the constitution of the Standing Committees, are that the constitution of the Standing Committees should be as follows:—

REGISTRATION COMMITTEE

The whole Council.

EXAMINATION COMMITTEE.

Bradley, O. Charnock.	Macqueen, J.
Buxton, J. B.	Male, G. P.
Craig, J. F.	Share Jones, J.
Dodd, J.	Sheather, A. L.
Dunkin, G. W.	Spreull, A.
Hobday, Sir F. T. G.	Walker, G. K.
Holroyd, J.	Whitehouse, A. W.
Livesey, G. H.	Wooldridge, G. H.
M'Fadyean, Sir J.	

FINANCE AND GENERAL PURPOSES COMMITTEE

Abson, J.	McIntosh, J. W.
Brittlebank, J. W.	Mattinson, A. B.
Coleman, J. C.	Mitchell, T. M.
Dolan, P. F.	Nairn, W.
Donnelly, A. A.	Townson, W. K.
Dunkin, G. W.	Willett, J.
Hughes, R.	Wragg, W. G.
Kirk, W. H.	Young, T D.
Locke, G. H.	

PARLIAMENTARY COMMITTEE

Abson, J.	Buxton, J. B.
Bradley, O. Charnock.	Coleman, J. C.
Brittlebank, J. W.	Craig, J. F.

Parliamentary Committee—*continued.*

Dolan, P. F.	Share Jones, J.
Locke, G. H.	Simpson, R.
M'Fadyean, Sir J.	Willett, J.
McIntosh, J. W.	Wragg, W. G.
Male, G. P.	Young, T. D.
Nairn, W.	

LIBRARY AND PUBLICATION COMMITTEE

Dodd, J.	Mitchell, T M.
Donnelly, A. A.	Sheather, A. L.
Hobday, Sir F. T. G.	Simpson, R.
Holroyd, J.	Spreull, A.
Hughes, R.	Townson, W. K.
Kirk, W. H.	Walker, G. K.
Livesey, G. H.	Whitehouse, A. W.
Macqueen. J.	Wooldridge, G. H.
Mattinson, A. B.	

The President: The list is not quite in accordance with that circulated beforehand in paper No. 5.

The Secretary: The Chairmen's Committee examined the suggestions submitted and revised them somewhat.

The President: I move that this Report be received and adopted.

Mr. G. H. Locke seconded the motion, which was carried.

Election of Auditors.—Mr. McIntosh: I propose that Messrs. Woodhouse and Wilkinson, Chartered Accountants, be re-elected our Auditors.

Professor Hobday seconded the motion, which was carried.

Dates of Meetings and Examinations

The President: The suggested dates of meetings and examinations are as follows:—

(*a*) Annual General Meeting, Thursday, June 7th, 1934.

(*b*) Council Meetings, October 6th, 1933; January 5th, 1934; April 6th, 1934; July 6th, 1934.

(*c*) Membership Examinations:—

Written, December 8th, 1933; July 9th, 1934.

Orals, December 11th, 1933; July 11th, 1934.

(*d*) D.V.S.M. Examination:—

Written, June 7th and 8th, 1934.

Orals, June 11th and 12th, 1934.

The Treasurer: I move that these dates be approved.

Mr. Willett seconded the motion.

Professor Craig: Could not the dates of the July examinations be earlier than is given here? It would be convenient for those who are University teachers, or who are governed by University regulations.

The President: This suggestion is put forward quite frequently, but the difficulty is that there is a Council meeting on July 6th, and it is difficult to hold the Council meeting and the examinations close together, nor can the members of the Council be in two places at once.

The Secretary: The date is fixed for us by the Bye-laws.

Professor Whitehouse: If it is only a Bye-law, I should like to give notice of motion to change it.

Professor Craig: I will second that.

Professor Buxton: An even more important point is the question of the length of terms. If we shift the dates back very much it is not possible for the requisite number of weeks' tuition to be given.

The Secretary: I am afraid nothing can be done for a year, but it would be very much more convenient for everybody if we could be more elastic about these dates.

Mr. Mattinson: I have thought for a long time that if it were possible to condense the terms a little, shortening the vacations at Christmas and Easter, and giving a longer Summer vacation, it would be very beneficial.

The dates given on the agenda were approved.

NOTICES OF MOTION

Mr. Holroyd: I give notice that at the next meeting of the Council I shall propose the following amendment to Bye-law 62:—

"In Para. 2, delete all words after 'taken' in line 4, and insert in their place the words 'as part of the second examination.'"

Professor Buxton gave notice of the following alteration to Bye-law 110:—"To delete the second paragraph."

Professor Whitehouse: I give notice that I shall propose an amendment to allow the Council meetings to be held near the end of June.

The Quarterly Meeting of Council then terminated, and the Special Meeting was held.

* * * * *

SPECIAL MEETINGS OF COUNCIL

A Special Meeting of Council of the Royal College of Veterinary Surgeons was held at 10, Red Lion Square, London, on Friday July 7th, 1933, at 3.30 p.m., immediately following the termination of the Quarterly Meeting, Professor S. H. Gaiger, President, occupying the chair.

The minutes of the previous meeting were taken as read and signed as correct.

The President: I beg to move that the amendment to the Bye-laws set out on page 4 of the agenda be adopted. The amendment is as follows:—

Bye-Law 77.—The marks to be used by the examiners in the record of examinations shall be indicated by numbers. One hundred marks shall be the maximum, 50 being allotted to the written section, and 50 to the oral and practical section, in each subject.

Students must present themselves for examination in all the subjects of the examination group, and those obtaining not less than 45 *per cent. of the maximum number of marks* in each subject of the examination group shall qualify for a Pass. Students obtaining Pass marks in all but one of the subjects of an examination group may be exempted from further examination in the subject or subjects in which they have passed, and

be allowed to proceed to the next Year's course of study conditionally on their passing in the required subject at a subsequent examination prior to presenting themselves for examination in the next year's examination group.

Students obtaining not less than 60 *per cent. of the maximum number of marks* in each subject shall be awarded Second Class Honours, and those obtaining not less than 75 *per cent. of the maximum number of marks* in each subject shall be awarded First Class Honours. No Honours shall be awarded unless the requisite number of marks are obtained in each and every subject of the year's examination group at one and the same examination.

(*Words in italic deleted, see below.*)

Mr. Holroyd seconded the motion.

The Secretary: I should like to suggest that several words might be omitted from two of the paragraphs without interfering with the meaning at all. We say in the first paragraph "One hundred marks shall be the maximum," and then, on the third line in the second paragraph, we say "those obtaining not less than 45 per cent. of the maximum number of marks." Since 100 is maximum, 45 is bound to be *per cent.*, and I think if we took out "per cent. of the maximum number of marks" and merely said "45" it would be sufficient. The same applies to the last paragraph, where there is a reference to "60 per cent. of the maximum number of marks" and "75 per cent. of the maximum number of marks." It would be sufficient to say "60 marks" and "75 marks." That would preserve the meaning and get rid of a number of unnecessary words, I think.

The President: I am sure we can agree to that. I will put the motion.

The motion was carried unanimously.

It was decided to hold the confirmatory meeting on Wednesday, July 19th, at 2.30 p.m.

The proceedings then terminated.

The alterations to Bye-law 77 passed at this Special Meeting were confirmed at a subsequent special meeting of Council held on July 19th, when it was further agreed that the Common Seal of the College be affixed to the Bye-law as altered.

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

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DIARY OF EVENTS

Aug. 18th.—Meeting of the Midland Counties Division, N.V.M.A., at Birmingham.

Aug. 19th.—Summer Meeting of the South-Eastern Division, N.V.M.A., at Langley Court, Beckenham.

Aug. 21st.—Meeting of the Editorial Committee, N.V.M.A., at 2, Verulam Buildings, Gray's Inn, W.C.1, at 4.30 p.m.

Sept. 18th-22nd.—N.V.M.A. Congress, Llandudno.

Sept. 25th-26th.—R.C.V.S. Jubilee Memorial and Bursary Prize Examination.

Oct. 4th.—R.C.V.S. Committee Meetings.

Oct. 5th.—R.C.V.S. Registration Committee.

Oct. 6th.—R.C.V.S. Committee and Council Meetings.

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PERSONAL

The College of Physicians Honours Sir John M'Fadyean.—At the quarterly comitia of the Royal College of Physicians, held on July 27th, with the President, Lord Dawson of Penn, in the chair, the Weber-Parkes Prize and Medal for the best work already done in connection with the etiology, prevention, pathology, or treatment of tuberculosis in this country or abroad was awarded to Sir John M'Fadyean.

Marriage. — Garside, J. — Patrick, G. — On August 2nd, at St. Hilary's Church, Wallasey, John Garside, M.R.C.V.S., of the Veterinary Research Department, Bristol University, to Gladys Patrick, daughter of Mr. George Patrick, of Lycett Road, Wallasey.

Little Miss Audrey Thomas acted as train-bearer, and the bridesmaids were Miss Rita McDarraghar and Miss Dora Earp. A reception was held at The Grange, Wallasey.

Appointment.—Mr. J. Morton, M.R.C.V.S., Chief Veterinary Adviser, Falkland Islands, has been appointed as Veterinary Officer, Nigeria.

* * * * *

EDINBURGH DEGREE OF B.Sc. IN VETERINARY SCIENCE

At Examinations for the Degree of B.Sc. in Veterinary Science, conferred by the University of Edinburgh, the following passed in the respective classes:—

Chemistry.—Andrew M. Bain, William B. Brownie, William K. Carnegie, Henry M. Clark, George F. Defferary, James S. J. Lauder, Roderick I. Macrae, David D. Ogilvie.

Physics.—Andrew M. Bain, William B. Brownie, Henry M. Clark, David S. Clouston, John A. Dall, William G. Haggie, Robert H. J. Latta, Roderick I. Macrae, David D. Ogilvie, Louis F. Robertson, John W. Whittick.

Botany.—Andrew M. Bain, William B. Brownie, William K. Carnegie, Henry M. Clark, David S. Clouston, John A. Dall, William G. Haggie, Roderick I. Macrae, David D. Ogilvie, John W. Whittick.

Physiology.—Kenneth P. Anderson, William M. Brownie, Stanley T. Harriss, William M. Henderson, Norman W. Keith, James W. Simpson.

Genetics.—Arthur J. Adams, Howard R. Binns, Robert W. Bowman, Archibald W. Chalmers, James K. S. Elmslie, Robert M. Gambles, James A. McKinnon, Samuel G. Wilson, Alan R. Withers.

Sanitary Science and Veterinary Hygiene (Chemistry).—Arthur J. Adams, Robert W. Bowman, Archibald W. Chalmers, James K. S. Elmslie, Robert M. Gambles, James A. McKinnon, David L. O'Brien, Alan R. Withers.

Pathological Bacteriology.—Arthur J. Adams, Robert W. Bowman, Archibald W. Chalmers, James K. S. Elmslie, Robert M. Gambles, James

A. McKinnon, Samuel G. Wilson, Alan R. Withers, Howard R. Binns.

Entomology and Parasitology. — Frederick Addison, William F. Barton, Walter B. Forrest.

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Conferment of Degrees

At the recent Graduation Ceremony the Degree of B.Sc. in Veterinary Science was conferred on Mr. Frederick H. Addison, M.R.C.V.S.; Mr. William F. Barton, M.R.C.V.S.; Mr. Walter B. Forrest, M.R.C.V.S.; and Mr. David L. O'Brien, M.R.C.V.S.

The Degree of D.Sc. in Veterinary Science was conferred on Mr. Geoffrey Bernard Brook, M.R.C.V.S. This is the first time this Degree has been conferred.

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VETERINARY INSPECTION NEWS

Whole-Time Officer for Kent

The Public Health and Housing Committee has reported to the Kent County Council that after consideration by them and the Agricultural Committee and its Diseases of Animals Sub-Committee, the conclusion had been reached that in order properly to carry out the statutory duties which had been placed upon the Council under the Diseases of Animals Acts and Orders, the Tuberculosis Order, 1925, the Milk and Dairies (Consolidation) Act, 1915, and the Milk and Dairies Order, 1926, the time had now arrived when the County Council should appoint a whole-time veterinary inspector. The work was at present undertaken by part-time Veterinary Inspectors, and it was considered that a whole-time Inspector was desirable in order to assist in the efficient administration of the duties and to co-ordinate the veterinary work in the County. The number of cows and heifers in the County on June 4th, 1932, was estimated at 51,520, and at present they were not subject to periodical inspections. The Kent Branch of the National Farmers' Union and the Kent Milk Recording Society had recommended the appointment of a whole-time Veterinary Surgeon, and the Committee therefore recommended that a whole-time Veterinary Surgeon be appointed at a salary of £700 a year.

The Committee's recommendations were approved.

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Proposed Whole-Time Officer for West Sussex

At a recent meeting of the West Sussex County Council, the Public Health Committee reported having resolved to ask the Finance and General Purposes Committee to submit to the Council the necessary recommendations providing for (1) the regular inspection of all dairy herds in the county under the Milk and Dairies (Consolidation) Act, 1915, at least three times in each year; (2) the appointment of a whole-time veterinary officer to act in conjunction with a rota of part-time veterinary officers for the purpose of administering the above Act and the Tuberculosis Order; (3) the appointment of a Standing Committee representing public health and agricultural interests to administer the Act and Order and report direct to the Council.

With respect to the recommendations as to the veterinary officer, the report of the Finance Committee pointed out that the proposal was one of the matters now being considered by the Economic Advisory Council, whose report was expected in the near future, and they proposed that the matter should be deferred pending the receipt of this report.

On the motion of Sir Merrik Burrell, seconded by the Rev. E. D. L. Harvey, the Council decided, despite the view expressed by the Finance Committee, to authorise that preliminary steps be taken with regard to the proposed veterinary appointment.

Sir Merrik Burrell, who represents the Council on the County Councils Association, said he believed it would be the policy of every County Council to appoint a full-time officer, and it was necessary that steps should be taken at once.

. . . . .

The Aldershot Borough Council has approved a recommendation of the Highways Committee that in future a veterinary surgeon be called in as and when necessary, for purposes of consultation, at the discretion of the committee. This recommendation will not affect the existing appointment of the Veterinary Medical Inspector under the Disease of Animals Acts.

* * * * *

ROYAL VETERINARY COLLEGE

Site Purchased

The report presented to the annual meeting of the Governors of the Royal Veterinary College, which was held on July 24th, stated that the Governors have purchased from the Ecclesiastical Commissioners the site of the College, for which they previously paid a ground rent, and also certain houses and cottages to the north. When possession can be obtained of these it will permit of a hospital block being erected on that site. "As previously reported," the statement proceeds, "the Minister of Agriculture and Fisheries intimated to the Governors of the College that, provided the Governors could raise £100,000, the Government would make a grant of £150,000. The Governors are very glad indeed to announce that this total has now been reached. Strong efforts are still being made to obtain further donations, as it is anticipated that considerably more than £250,000 will be required to build and equip the various departments.

"Mr. and Mrs. W. J. Courtauld have most generously subscribed the sum of £25,000 for the endowment of the Chair of Animal Husbandry, and the Governors gratefully acknowledge the foundation.

"During the year 1932-33, the educational work of the College has been carried out in a satisfactory manner. Seventy-nine students entered, against 68 in the preceding year; the number in attendance at the beginning of the winter session being 276.

"At the examinations held by the Royal College of Veterinary Surgeons in July last, 184 students presented themselves and of these 106, or 58 per cent., proved successful; while at those held in December, 66 of the 121 students succeeded in passing.

"Of the 305 students of the College who presented themselves for examination during the year, 172, or 56 per cent., passed. In 1932 the number of students of the College who obtained the Diploma of the Royal College of Veterinary Surgeons was 33. Fifty-seven students succeeded in passing the first professional examination, 47 the second, and 35 the third.

"During the year 6,846 animals were brought to the Infirmary for examination, and 569 casualty and emergency cases received treatment. The numbers for the previous year were 6,462 and 220 respectively. The daily average number of dogs under treatment was 39. Under the bye-laws of the College, the payment of a subscription of £1 1s. annually entitles the subscriber to the admission of dogs and cats to the Infirmary for treatment.

"During the year 897 new subscribers were enrolled—a record during the last century. The out-patients' clinic dealt with 6,935 individual cases, involving 12,593 inspections, a considerable advance on the previous year."

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PHARMACEUTICAL CONFERENCE

A list of subjects requiring examination or further investigation was submitted at the closing session of the British Pharmaceutical Conference, held on July 27th at Grosvenor House, Park Lane. They were recommended to members who had facilities for conducting research, and it was stated that previous lists had been of value to workers requiring suggestions.

Dr. C. H. Hampshire was re-elected Chairman of the Conference, and it was decided to accept the invitation of Leeds pharmaceutical organisations to hold next year's meetings in that city. It was stated that the Leeds civic authorities and the university authorities were very anxious to receive a visit from the Conference, and that it was hoped before long to establish a degree in pharmacy at the university.

* * * * *

DOCTORS FOR THE DEFENCE SERVICES

A scheme for remedying the unsatisfactory recruitment of doctors for the Defence Services is described in a recently-issued White Paper, containing the report of the Committee on the Medical Branches of the Defence Services, which was appointed in May, 1931. (Stationery Office, Cmd. 4394, price 9d. net.)

The broad conclusion of the Committee is that the Service career must be improved materially, both in the opportunity that it provides for professional work and in the economic advantages that it offers. They find the means of effecting this dual improvement in a reorganisation of the Services, and they are satisfied that such a reorganisation can be effected without increase in their normal cost.

The Committee concludes that the reasons which operate in the minds of medical students to deter them from adopting a career in the Medical Services fall under two main headings: the career is believed to lack professional opportunity, and it is not considered to offer sufficient economic attraction.

The Services should, it is recommended, be reorganised on the basis of a reduced total establishment of officers by the elimination of posts which provide insufficient professional work. Professional opportunity would further be improved by all officers who make the Services their life career being allowed to specialise if qualified to do so; by specialists being enabled to spend a considerable part of their career in practising their speciality; and by the opportunity to rise to the higher ranks without abandoning professional for administrative work being largely increased.

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ANIMAL DISEASES RESEARCH IN SCOTLAND

Dr. J. Russell Grieg, Director of the Moredun Institute, Gilmerton, in reviewing the past year's work, on the occasion of the annual meeting of the Animal Diseases Research Association of Scotland, referred to the fact that the cause of louping-ill as a filtrable virus had been fully established, and that the tick had been definitely proved to be the means by which the disease was transmitted in the field. Efforts were now, therefore principally directed towards assessing the preventive value of vaccines prepared from the killed virus. They had been able to show that in experimental sheep killed vaccines were capable of setting up a solid immunity to the disease.

This year a very extensive field experiment had been carried through, approximately 20,000 hogs and lambs having been vaccinated and 20,000 left as controls. Because of the largeness of the numbers involved the full results had yet to be collated, but so far the results of the experiment had been decidedly encouraging, and in many instances were obviously of real significance.

Tick-borne fever, the existence of which as a distinct entity was discovered during the course of the louping-ill investigation, had been shown to be of very real economic importance to the flockmaster, and there was now good reason to believe that, with louping-ill, and possibly other diseased conditions, its occurrence played an important part in the process known as "acclimatisation" of hill flocks.

Lamb dysentery serum continued to prove of specific efficacy in the prevention of the disease, and figures were quoted illustrating the remarkable increase in the use of lamb dysentery serum. Whereas in 1929, 9,000 doses were issued, during the spring of 1933 the institute issued 68,000 doses. It was pointed out that the demand had increased to such an extent that, had not very special efforts been made, the preparation of this product would have seriously reduced the research work of the institute.

The important problem of grass disease continued to be actively investigated. In recent years the problem had been attacked from the biochemical as well as from the bacteriological standpoint. Over 100 specimens of blood, representing about 1,600 quantitative estimations of its constituents, had been analysed. Collections of sweepings of the sub-aerial insect fauna from 70 infected pastures had been made, and these had been administered to 34 test horses. These results had been negative.

Interesting results had, however, been obtained by the investigation of toxins present in the bowel in cases of grass disease. It was much too early to formulate any definite opinion upon these results, but they were being actively followed up, and Dr. Greig gave the assurance that no effort was being spared to elucidate the problem of grass disease.

The investigation of disease problems was based on a very wide plan of attack. It was to be remembered that that organisation was rendered possible by one who had always had the interests of the Association very close to his heart. He referred to him who a few years ago instituted the staff endowment fund by his munificent gift of £10,000. It was necessary to continue to respect the desire of the donor for anonymity, but they could not be sufficiently appreciative of that splendidly generous gesture.

Plans for the extension of the institute had for some time been prepared. To bring these plans to fruition a relatively small sum of money was required, a sum which was a mere item when compared with the losses which Scottish agriculture annually suffered by disease and death of its live stock.

* * * * *

"Panthesine": A Correction.—In our issue of last week, on pages 752 and 753, there appeared a resumé of an article entitled "The More Recent Anæsthetics and their Use in Veterinary Medicine" (Berner), and in the concluding paragraph "Panthesine" was dealt with. The statement was made that "Panthesine" is prepared by the firm "Sandoz, Nurnberg," but we understand that this local anæsthetic, the composition of

which is N-diethyl-leucinol ester of para-amidobenzoic acid, is of neither German manufacture nor origin, but is produced by The Sandoz Chemical Works, of Basle, Switzerland, and is obtainable from "J. Flint, Sandoz Products," 5, Wigmore Street, London, W.1.

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

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REPORT OF THE REORGANISATION COMMISSION FOR MILK: DAIRY HERD INSPECTION

To the Editor of the Veterinary Record

Sir,—I sincerely regret the unfortunate controversy which has developed as a result of the above report. The profession, for years, has advocated the routine inspection of milch cows, and now that its desire is likely to be gratified there has developed this unfortunate position. May I be permitted to point out that if all milch cows are to be inspected periodically the bulk of this work must inevitably go to the private practitioner?

It is my considered opinion that, at this juncture, it is neither possible or desirable (from a whole-time official's point of view) that every county should forthwith appoint a whole-time staff, although I do believe the appointment of a whole-time Chief Veterinary Officer to each county to be desirable and indeed in the best interests of the profession.

Lest I may appear to have suddenly changed my opinion, I would explain that the Council of the "Central" asked Captain Townson to play the rôle of hero and myself the rôle of villain at the meeting reported in the *Record* of 22nd ultimo, and I, like an advocate in the law courts, endeavoured to prepare a case for the prosecution, explaining to the meeting that only by hearing such a case could a good defence be prepared. The meeting received my remarks with decorous tolerance and even awarded me a fair measure of applause; I have since gathered, however, that some who were not present have failed to grasp the spirit in which my remarks were both made and received and have even read into my remarks opinions which I do not hold. Mr. Hall Masheter, I submit, is not over tolerant as counsel for the defence, and I should like to inform him that if clinical examination were capable of giving a milk which was never guilty of harbouring tubercle bacilli, then there would be little need for the higher grades. Medical opinion, with which I claim to be in touch, holds that the graded milks have not occasionally, but *too frequently*, been found wanting. His criticism of "specialist" is unsound; the magic letters M.R.C.V.S. did not automatically make him the clinical specialist we know him to be—experience has, to a large extent, done that. All things being equal, the man who devotes his whole time and energy to a particular aspect of our work must in time become more expert than one who only devotes part of his time thereto. His comments on the Fertiliser and Foodstuffs Acts are, I submit, unkind. I can hardly believe that one with so obvious a knowledge of Acts and Orders can be ignorant of the fact that this Act provides for three officials—the inspector, the sampler and the analyst—and, furthermore, that the analyst must have qualifications which a veterinarian, as such, can never claim to possess. Quite a few Medical Officers of Health administer this Act which, I claim, could be better administered by a veterinarian, with his knowledge of veterinarian dietetics.

I could enlarge on other matters, but this would not help the position. I would say, however, that it is a refreshing sign of the times that we have men such as Mr. Hall Masheter to champion the cause of the profession. Oh, that this spirit had been alive and virile in 1875! Veterinary surgeons would not then have been ignored in public health legislature and the veterinary meat inspector would have had some legal status whereas, to-day, as such, he has none.

May I ask Mr. Hall Masheter and his disciples to read once again my remarks; this time, if possible, with some degree of magnanimity. I am first and last a veterinarian and I hope one day to see "*Vis Unita Fortior*" an established fact.

I am Sir,

Yours, etc.,

H. E. Bywater.

Town Hall,
West Ham, E.15.
August 5th, 1933.

. . . . .

To the Editor of the Veterinary Record

Sir,—In reply to Mr. A. B. Kerr's letter in the *Veterinary Record* of July 29th, 1933, my information was obtained from an article written to the *Cheshire Observer* of May 6th, 1933, and which I beg to forward to the Editorial Committee. I hope that they will at least publish that part of the article dealing with the salaries of the veterinary inspectors, and the number of annual inspections carried out by them.

Yours faithfully,

W. K. Townson.

Red Walls,
77, Lincoln Road,
Peterborough.
August 7th, 1933.

[The passages to which reference is made by our correspondent, and which occur in a letter to the *Cheshire Observer* from Mr. J. Pope, of Kirkby, are as follow:—

"Let the Cheshire taxpayers carefully consider these figures, and they will see whether they will benefit from it or not. There are 65,500 cattle in Cheshire. There are 21 part-time veterinary officials responsible for their inspection, and each inspects on an average 3,000 cows twice or perhaps four times yearly. These officials have had years of valuable clinical experience, not only in diagnosing bovine tuberculosis, but in all branches of cattle management. The total salaries of all these officials amount to £4,500 per annum.

"It is now suggested to replace these 21 officials with five whole-time officials and one chief official, whose salaries total £3,250 per year. The taxpayer thinks that a saving of £1,250 will result, but he forgets that Government salaries have a habit of rising each year and that £1,250 will nowhere nearly cover the expense of five motor cars and drivers, offices and clerical staff. Moreover, he is informed that the scheme will render the inspection more efficient. This is extremely doubtful. There is no doubt that the inspection will be less efficient, for it would be a physical impossibility for five officials to each visit and examine 13,000 cows twice and sometimes four times yearly.

"The man who is concerned about public health would place more reliance on the results of inspection by 21 already well-trained and experienced officials conveniently situated throughout the county and with a reasonable number of cattle to inspect."]

. . . . .

To the Editor of the Veterinary Record

Sir,—Might the question be put, to those who have experience of the work of dairy herd inspection under the Milk and Dairies Acts and Orders and the Tuberculosis Order, 1925, so that a general knowledge would be available when discussion is abroad, what is the number of cows that an inspector can examine in a day?

So far as can be ascertained, there appear to be only 275 days actually available per annum. Many veterinary surgeons state that the udder must be milked out clean before it can be properly inspected. If this is so, what are the working hours of the inspector? Will whole-time inspectors give their experience of how they carry out the daily routine work, *i.e.*, how they space out the day's work? How many hours do they actually spend on examinations? What time do they spend on reports and returns, and what on travelling?—and so on.

Before the general practitioner, or anyone else, can profitably discuss whole-time or part-time services, information such as is shown above must be available. Such information should be in the hands of the "National," the Royal College, the Ministries of Health and Agriculture, and, if so, should be made available to the profession as a whole. It is hoped that those who can help will be good enough to publish their information.

In some of the discussions that have taken place lately opinions have been advanced that no man can serve two masters—that part-time inspectors can only be justified when the amount of work is insufficient to justify the economic outlay on a proper whole-time salary, and that inspection work was tending more and more to specialisation so that men only who are trained for it should be employed as against the ordinary practitioner.

To serve the agriculturalist well is to state what is the actual condition of his herd and deal with it accordingly. That is what the Acts and Orders are on the Statute Book for, and personally one fails to see where the serving of two masters comes in.

It is a large question to decide where the work is insufficient to justify the economic outlay on a proper whole-time salary, and the first queries in this letter must be answered before one can really give an answer in full to this.

The question of a whole-time salary should, however, be capable of definition in itself. What do we, as a profession, consider a proper whole-time salary? £350 to £500 per annum? If so, we have a very poor conceit of ourselves, and men who accept such are very soon correctly placed by council clerks, M.Os. H. and members of council. Deputy M.Os.H. start with £500, but most receive £600 upwards. Again, looking at herd inspection from a financial point of view, and having in mind all the natural conditions that have to be encountered, can any appointment be justified that compels work at two short specific periods at either end of the day, leaving the centre of the day blank?

It is hoped that whole-time men and part-time men will put forward their experiences so that the discussions will be really of a beneficial nature to all of us.

Yours truly,
J. Campbell Hill.

Bres Forge,
Als Street,
Llanelly.

August, 1933.

* * * * *

To the Editor of the Veterinary Record

Sir,—As I believe the *Veterinary Record* is read to a considerable extent by medical men, agriculturists and other laymen, I would suggest that, in the interests of our profession as a whole, the Editorial Committee should "call a halt" to the discussions in your correspondence columns on the Report of the Milk Reorganisation Commission (at least as it affects the veterinary profession) and the subject of part-time *versus* whole-time inspections, and let it be known that "this correspondence is now closed."

For months we have been subjected to the almost weekly ebullition from the pens of a certain few members and if nothing more to the point can be written than much of what we have had of late, I fear that our prestige will not be enhanced.

I do not intend even to try to answer any of the misleading statements made or the half-truths given, but, in conclusion, I would say that it appears to me that the strongest case in favour of the whole-time official has been made out, not by those who are advocating whole-time appointments, but by certain of your correspondents who have continuously written on the other side.

Yours faithfully,
D. S. Rabagliati.

Veterinary Department,
County Hall,
Wakefield.

August 5th, 1933.

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AFRICAN HORSE SICKNESS

To the Editor of the Veterinary Record

Sir,—Mr. Cocksedge's articles on the above disease in your issues of July 30th, 1932, and May 6th, 1933, have been perused with interest. In South Africa horse sickness has been treated by various people, with and without professional qualifications, for a large number of years unsuccessfully, in spite of many claims. One reason for the small percentage of successes may be because the early stages of the disease are not recognised and a clinical diagnosis is only made when complications have developed. The initial febrile stage lasts several days, during which the animal may seem to be in its usual health and spirits, maintains its appetite and carries out its usual work or duties. The usual tale told is that the disease was sudden in its onset. The animal was perfectly well, working normally, but suddenly became distressed, with hurried respirations. I have known animals to fall dead under the saddle or in harness.

About 26 years ago the South African Constabulary in the Transvaal lost many horses on patrol and troopers arrived back in camp carrying their saddles, etc. To obviate this, instructions were issued that in horse sickness areas all horses must be temperatured daily and any showing elevations were not to be taken out. Speaking later to various officers in charge, I learned that splendid results were thus obtained. Deaths on patrol were practically eliminated, whilst many animals showing the initial fever developed no further clinical symptoms but recovered in due course after a varying period of febrile disturbance. I also remember a foreman in charge of the Public Works Department mules in Pretoria remarking to me that if mules showing the slightest indisposition or dulness during the dangerous season were taken off work and nursed, the majority made good recoveries. At that time cab horses used to drop dead in Pretoria streets. Might I suggest to Mr. Cocksedge that he advises

Government Departments and intelligent owners to carry out the temperature test on equines each morning during the dangerous season if this precaution is not already adopted, and report results?

F. J. Dunning, f.r.c.v.s.

Stellenbosch,
South Africa.
July 12th, 1933.

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THE BURDIZZO METHOD OF CASTRATION

To the Editor of the Veterinary Record

Sir,—Until I read Mr. Wilson's letter on this subject I thought every veterinary surgeon employed the same technique, but this idea is evidently quite wrong, and it may be helpful to give another point of view. I purchased my castrator in 1914, and it was then the only pattern made, but now there are three sizes—one for lambs, one, measuring about one foot, for calves and bovines up to about five months old, and another, much larger, which would take two hands to work, but I have never used this pattern.

There are good and bad instruments, in the same way that there are good and bad emasculators. Mr. Crosfield should examine the instrument carefully before he buys it. In some of them the jaws only just meet when closed and do not completely crush the blood vessels, and others are too light and are inclined to cut the skin and cause hæmorrhage, which is very undesirable. My own model had the last fault, but, with constant use, the edges got rounder, and now it works extremely well.

The best age to operate on calves is between ten days old and three months, but I have done them at three or four days old without any ill effects.

Mr. Wilson's method of securing the animals is much the same, but with the larger calves it is wise to have the halter shank round a post or through a ring: this keeps the animal from moving forward. The man who holds the tail should press his leg into the calf's flank, thus holding him tight against the boards and preventing him from kicking freely. For the operation the veterinary surgeon pulls the right testicle down with the left hand and presses the cord against the outside of the scrotum; the instrument is then applied to the cord and when in place the lower handle is rested on the left knee, and the right hand, holding the top handle, presses the two together as hard as possible, taking care that the cord does not slip out of the jaws. This pressure is sufficient to flatten out the cord so that it does not slip, but is not sufficient to close the instrument. To do this, the left hand releases the scrotum and grips the lower handle and closes the instrument. Open the instrument at once (no need to wait "a generous minute") and repeat the operation about half an inch lower down the same cord. (This was the instruction given when the instrument was first sent out.) Reverse the hands and repeat the operation on the other testicle.

In *young* lambs the operation is done in the usual position for castrating these patients, but it is more difficult to fix the claws owing to the shortness of the cord and the angles of the castrator catching in the wool. The lamb should be held very upright, as this enables the lower handle to rest more easily on the board on which the lamb is held.

Yours faithfully,

Oxted. Arnold Spicer, f.r.c.v.s.

To the Editor of the Veterinary Record

Sir,—I have never used the Burdizzo method of castration myself, but it may be interesting to note that a few years ago I was asked to castrate four or five young bulls about 18 months old, out of a batch bought at a market, the buyer purchasing them for steers, and then finding by their antics that they were not. At the operation one had one testicle atrophied, and the mark where the Burdizzo instrument had been was clearly visible. Others had both testicles about half developed. Later on, a similar experience occurred at another farm, and the owner threatened to sue the seller for one of the animals serving some valuable heifers. Another time a dealer at our local market told me that he had just bought the sheep out of a flock at a reduced price, because they had not been done efficiently. On the other hand, I know of one flock where the shepherd had done them for years by the above-mentioned method, and he claims perfect success.

Yours faithfully,

Henry Taylor.

Haywards Heath.
July 31st, 1933.

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THE ROYAL VETERINARY COLLEGE AND THE D.V.S.M. DEGREE

To the Editor of the Veterinary Record

Sir,—Now that the unremitting efforts of Sir Frederick Hobday to place the finances of the Royal Veterinary College on a sound basis shew signs of a thoroughly well-merited success, all well-wishers of that institution and of its recent graduates are looking anxiously forward to the early establishment of a course of instruction preparatory to the examination for the most valuable of all post-graduate degrees, the Diploma in Veterinary State Medicine.

It appears to me highly probable that Public Health appointments will be given preferably to men holding this Diploma, and that there is, at least, a possibility that eventually such a Bye-law as exists regulating the appointment of M.Os.H., *viz.*, that if one amongst the candidates holds the D.Ph. diploma he is automatically elected, may be forced upon the electing bodies for such appointments.

At the present time students or recent graduates residing in or near London are considerably handicapped by the lack of facilities for taking this course, and I personally know more than one recent graduate who has been debarred from taking this useful diploma by the expense involved in having to go north for his training.

Faithfully yours,

David Eric Wilkinson.

Oakwood,
Chigwell, Essex.
August 7th, 1933.

The Editor acknowledges, with thanks, the receipt of the following:—

Communications from Messrs. Ll. E. W. Bevan (London), J. M. Buchanan (Stowmarket), J. Carmichael (Entebbe, Uganda), E. G. Conisbee (Kimbolton), Major B. De Vine (Birmingham), Major G. W. Dunkin (Mill Hill), Dr. J. T. Edwards (Lister Institute), Mr. C. Formston (Royal Veterinary College), Major D. S. Rabagliati (Wakefield), Mr. J. L. Stewart (Gold Coast) and Captain W. Tweed (Sheffield).

Report of a Provincial General Meeting of the V.M.A. of Ireland, from Professor J. J. O'Connor, Hon. Secretary.